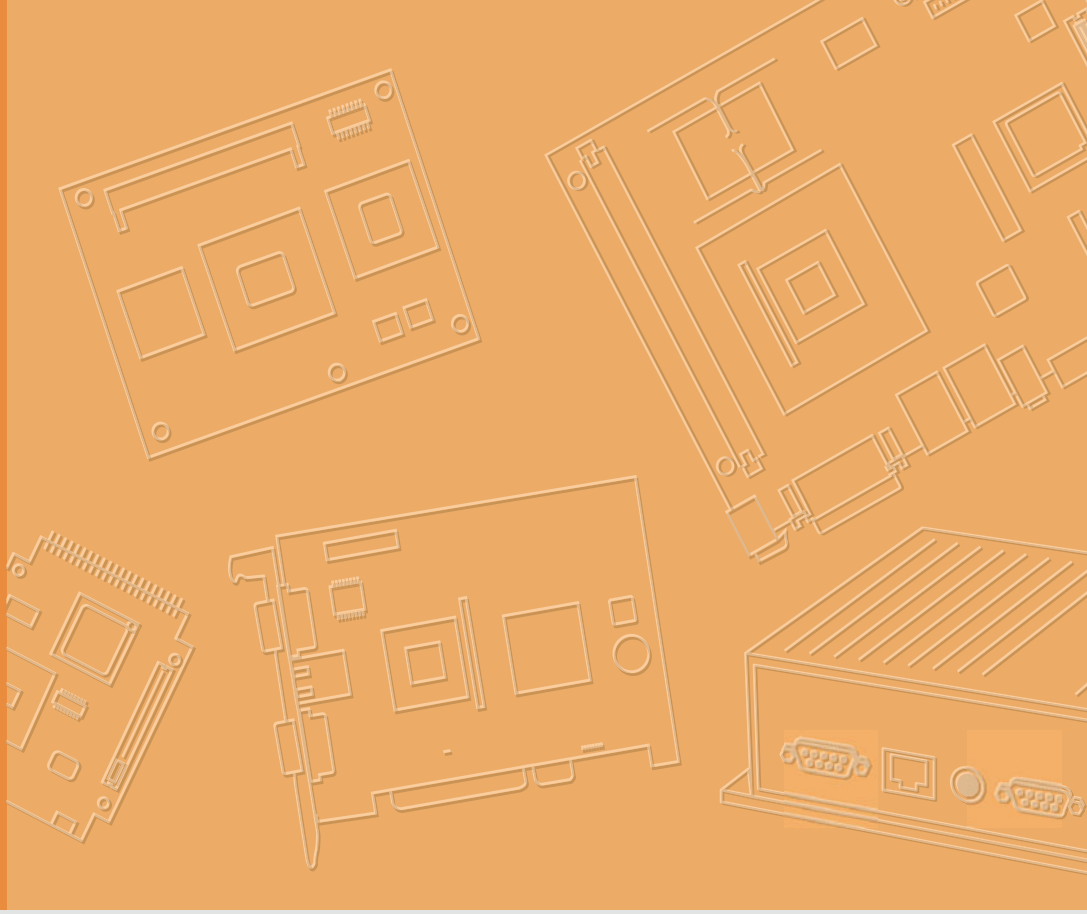


User Manual

UTC-520A/B

AMD T40E (UTC-520A) & Intel Atom D2550 (UTC-520B) Processor- based Ubiquitous 21.5” LCD Touch Computer

ADVANTECH

Enabling an Intelligent Planet

Copyright

The documentation and the software included with this product are copyrighted 2010 by Advantech Co., Ltd. All rights are reserved. Advantech Co., Ltd. reserves the right to make improvements in the products described in this manual at any time without notice. No part of this manual may be reproduced, copied, translated or transmitted in any form or by any means without the prior written permission of Advantech Co., Ltd. Information provided in this manual is intended to be accurate and reliable. However, Advantech Co., Ltd. assumes no responsibility for its use, nor for any infringements of the rights of third parties, which may result from its use.

Acknowledgements

Award is a trademark of Award Software International, Inc. Intel and Celeron are trademarks of Intel Corporation.

IBM, PC/AT, PS/2 and VGA are trademarks of International Business

Machines Corporation.

Intel and Pentium are trademarks of Intel Corporation.

Microsoft Windows is a registered trademark of Microsoft Corp. RTL is a trademark of Realtek Semiconductor Co., Ltd.

All other product names or trademarks are properties of their respective owners.

For more information on this and other Advantech products, please visit our websites at:

http://www.advantech.com

http://www.advantech.com/ppc

For technical support and service, please visit our support website at:

http://support.advantech.com

This manual is for the UTC-520A/B.

Part No. 2008C52000 Edition 1

Printed in Taiwan May 2012

Declaration of Conformity

FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning! *Any changes or modifications made to the equipment which are not expressly approved by the relevant standards authority could void your authority to operate the equipment.*

Packing List

Before you begin installing UTC-520A/B, please make sure that the following materials have been shipped:

- UTC-520A/B series
- Accessories for UTC-520A/B
  - Warranty card
  - DC 12V/ 60W power Adapter
  - Driver CD-ROM disc
  - Mounting kits and packet of screws

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Assistance

1. Visit the Advantech web site at http://support.advantech.com where you can find the latest information about the product.
2. Contact your distributor, sales representative, or Advantech's customer service center for technical support if you need additional assistance. Please have the following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Warning! *Danger of explosion if battery is incorrectly replaced. Replace only with the same or equiv- alent type recommended by the manufacturer. Dis- pose of used batteries according to the man- ufacturer's instructions.*

Warning!

1. *Input voltage rated 12 V, 5 A*
2. *Use a 3 V @ 195 mA lithium battery*
3. *Packing: please carry the unit with both hands, handle with care*
4. *Maintenance: to properly maintain and clean the surfaces, use only approved products or clean with a dry applicator*
5. *CompactFlash: Turn off power before insert- ing or removing Com- pactFlash storage card.*

Contact information:

Our European representative: Advantech Europe GmbH Kolberger Strafle 7

D-40599 Dβsseldorf, Germany

Tel: 49-211-97477350

Fax: 49-211-97477300

Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
15. The power cord or plug is damaged.
16. Liquid has penetrated into the equipment.
17. The equipment has been exposed to moisture.
18. The equipment does not work well, or you cannot get it to work according to the user's manual.
19. The equipment has been dropped and damaged.
20. The equipment has obvious signs of breakage.
21. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
22. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
23. The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

DISCLAIMER: This set of instructions is given according to IEC 704-1. Advantech disclaims all responsibility for the accuracy of any statements contained herein.

Contents

Chapter 1 General Information 1

1.1 Introduction 2
1.2 General Specifications 2
1.2.1 General 2
1.2.2 Standard PC functions 2
1.2.3 VGA Interface 3
Table 1.1: Internal Graphics Features 3
1.2.4 Audio Function 3
1.2.5 LAN Function 3
1.2.6 Touchscreen (Optional) 3
1.2.7 Optional Modules 3
1.2.8 Environment 4
1.3 LCD Specifications 4
1.4 Dimensions 5
Figure 1.1 Dimensions of UTC-520A/B 5

Chapter 2 System Setup 7

2.1 A Quick Tour of the UTC-520A/B 8
Figure 2.1 Front view of UTC-520A/B 8
Figure 2.2 Rear view of UTC-520A/B 8
2.2 Installation Procedures 9
2.2.1 Connecting the Power Cord 9
2.2.2 Connecting the Keyboard or Mouse 9
2.2.3 Switching on the Power 9
Figure 2.3 Connect the power cord to the DC inlet 9
2.3 Running the BIOS Setup Program 10
2.4 Installing System Software 10
2.4.1 Method 1: Ethernet 10
2.4.2 Method 2: External USB CD-ROM 10
2.5 Installing the Drivers 11

Chapter 3 Hardware Installation and Upgrading 13

3.1 Introduction 14
3.2 Installing the 2.5" Hard Disk Drive (HDD) 14
Figure 3.1 Installing primary 2.5" HDD 14
3.3 Installing the CFAST 15
Figure 3.2 Installing the Compact Flash card 15
3.4 Installing the Memory 15
Figure 3.3 Installing the memory 15
3.5 Installing the Wireless LAN Card 16

Chapter 4 Jumper Settings and Connectors ...25

4.1 Jumpers and Connectors (UTC-520A) 26
4.1.1 Jumpers 26
4.1.2 Connectors 28

Table 4.1: Connectors 28
4.1.3 Mechanical 29
Figure 4.1 Jumper and Connector Layout (Component Side) 29
Figure 4.2 Jumper and Connector Layout (Solder Side) 30
4.2 Jumpers and Connectors (UTC-520B) 31
4.2.1 Jumpers 31
Table 4.2: Jumpers 31
4.2.2 Connectors 33
Table 4.3: Connectors 33
4.2.3 Mechanical 34
Figure 4.3 Jumper and Connector Layout (Component Side) 34
Figure 4.4 Jumper and Connector Layout (Solder Side) 34

Appendix A Pin Assignments 35

A.1 Pin Assignments (UTC-520A) 36
A.2 Pin Assignments (UTC-520B) 55

Appendix B UTC-500 Peripherals Series Installation Guide 71

B.1 UTC-500 Peripherals Series Installation Guide 72

Chapter 1

General Information

This chapter gives background information on the UTC-520A/B.

Sections include:

- Introduction
- GeneralSpecifications
- LCD Specifications
- Dimensions

1.1 Introduction

The UTC-520A/B is an Intel low-power AMD T40E &Intel Atom D2550 processor computer that is designed to serve as a interactive self-service terminal and as a multimedia computer. It is a PC-based system with 21.5" TFT LCD display, on-board PCIe Ethernet controller, 3 COM port and 1 VGA connector. With a built in internal IDE connector (for CF card), one SATA connector for HDD and an mini PCIe expansion socket, the UTC-520A/B is a compact and user-friendly multi-function computer. In addition, its “fit anywhere” design makes it very flexible and able to be used in many different kinds of installations. It can be wall mounted or stood upright on a desktop.

For system integrators, this simple, complete, compact and highly integrated multimedia system lets you easily build UTC-520A/B into your applications. Common industrial applications include self-transaction & healthcare, information kiosk & interactive signage. UTC-520A/B is a reliable, cost-effective solution for your application requirements.

1.2 General Specifications

1.2.1 General

- **Dimensions (W x H x D):** 517.64 mm (L) x 313.51 mm (H) x 43.5 mm (D)
- **Weight:** 6.5 kg
- **Power supply:** ATX type Input Voltage: +12 V_{DC}, 5A
- **Power adaptor:** AC/DC (Standard Build in)
  Input voltage:100 ~ 240 V_{AC}
  Output voltage: 12 V @ 5 A
- **Disk drive housing:** Space for one 2.5" SATA HDD
- **Front panel:** IP65/NEMA4 compliant

1.2.2 Standard PC functions

- **CPU:**
  - Onboard AMD G- Series T40E Dual-core 1.0 GHz (UTC-520A)
  - Onboard Intel Atom Dual Core D2550 1.8 GHz (UTC-520B)
- **BIOS:**
  - AMI EFI 32-Mbit (UTC-520A)
  - AMI EFI 16-Mbit (UTC-520B)
- **System chipset:**
  - AMD G-series + A50M FCH (UTC-520A)
  - Intel Atom D2550 + NM10 (UTC-520B)
- **2nd level cache:**
  - 512 KB (UTC-520A)
  - 1 MB (UTC-520B)
- **System memory:** SO-DIMM DDR3 up to 4 G
- **Serial ports:** 3 x external COM
- **Universal serial bus (USB) port:** Supports up to 4 x USB V2.0
- **Mini PCI-E bus expansion slot:** Accepts one mini PCI-E device (Wire less LAN card), UTC-520B with SIM Holder
- **Solid State Disk:** Supports 1 x internal CFAST
- **Watchdog timer:** Single chip Watchdog 255-level interval timer, setup by software
- **Power management:** Full ACPI (Advanced Configuration andPower Interface)

2.0 Supports S0, S1, S3,S4, S5

1.2.3 VGA Interface

- **Chipset:** The GPU Contains a refresh of the third generation graphics core
- **Memory Size:** Up to 512 MB of dynamic video memory allocation
- **Interface:** VGA
- **Display mode:**
  - CRT: Analog RGB display output resolution up to 2048*1536 @ 60 Hz

Table 1.1: Internal Graphics Features

UTC-520A	UTC-520B
DirectX® 11 graphics with UVD 3.0 Up to 2 Display Port/TMDS Integrated VGA DAC Displayport 1.1a Integrated Graphics Engine clock speed: 500 MHz or 280 MHz, dependent	DirectX® 9 and OpenGL 3.0 Display Port 1.1, HDMI 1.3a Supports HDCP 1.3 Intel Display Power saving technology 6.0 SGXS45 Power VR Core 400/640 MHz

1.2.4 Audio Function

- **Audio:** High Definition Audio (HD), 3 W x 2 Speakers

1.2.5 LAN Function

- **Chipset:**
  - Realtek RTL8111E- VB-GR (UTC-520A)
  - Intel 82583V (UTC-520B)
- **Speed:** 1000 Mbps /Interface: 2 x RJ45
- **Wake-on-LAN:** Supports Wake-on-LAN function with ATX power control
- Supports LAN teaming (in Fault Tolerance)

1.2.6 Touchscreen (Optional)

Type	Analog Resistive 5 wires	Projected Capacitive Touch
Resolution	Continuous	
Light Transmission	80%	90%
Controller	USB interface	USB interface
Power Consumption	< 5 V @ 60 mA	
Software Driver	Supports Windows XP/ 7/ XPE	
Durability (Touches in a lifetime)	36 million	50,000 hours

1.2.7 Optional Modules

- **Memory:** 1 x SO-DIMM DDR3 1066 up to 4 GB (Bulid in 2 G)
- **HDD:** 2.5" SATA HDD
- **SSD:** Supports 1 x internal CFAST
- **Operating System:**
  - Windows XP, Windows 7 (UTC-520A)
  - Windows 7 (UTC-520B)

- **Touchscreen:** Analog Resistive, Projective Capacitive
- **Power cord:** 1702002600 (US) 1702002605 (Europe)
- **Wireless LAN Module:**

  UTC-520AB-WIFIE UTC-520AB Wireless LAN module

  Peripherals for UTC-500 series

  UTC-P01-A0E (2M Wecam)

  UTC-P02-A0E (MSR)

  UTC-P03-A0E (RFID)

  UTC-P06-A0E (Smart Card Reader)

  UTC-P07-A0E (Barcode reader)

  Standard Floor Stand Kits

  UTC-K01-STANDE

  UTC-K02-STANDE

  UTC-R01-STANDE

1.2.8 Environment

- **Operating temperature:** 0 ~ 40° C (32 ~ 104° F)
- **Storage temperature:** -20 ~ 60° C
- **Relative humidity:** 10 ~ 95% @ 40° C (non-condensing)
- **Shock:** 10 G peak acceleration (11 ms duration)
- **Certification:** EMC: CE, FCC, BSMI, VCCI.
  Safety: UL 60950, CB, CCC, BSMI

Vibration: 5 ~ 500 Hz 1 Grms RMS random vibration

- **VESA Support:** 100 x 100 mm (Suggest screws type- M4 x 5)
- Supports landscape and portrait screen mode

1.3 LCD Specifications

- **Display type:** 21.5" TFT LCD
- **Max. resolution:** 1920 x 1080
- **Colors:** 16.7 M
- **Dot size (mm):** 248.25(H) X 248.25 (V)
- **Viewing angle:** 178 ° / 178°
- **Luminance:** 250 cd/m^2 (Optional 400)
- ***VR control:** Brightness could be modified through BIOS

Note! *The color LCD display installed in the UTC-520A/B is high-quality and reliable. However, it may contain a few defective pixels which do not always illuminate. With current technology, it is impossible to completely eliminate defective pixels. Advantech is actively working to improve this technology.*

1.4 Dimensions

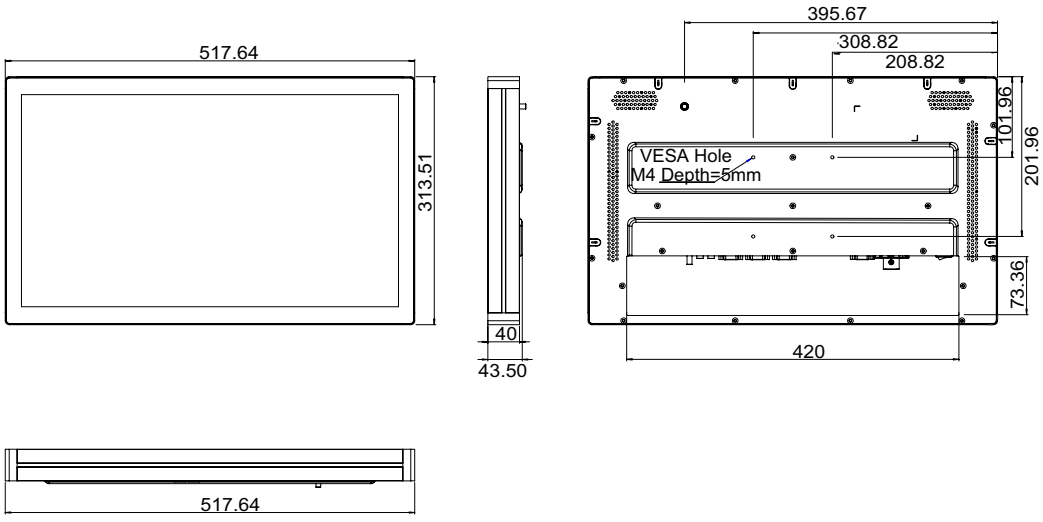


Figure 1.1 Dimensions of UTC-520A/B

Chapter 2

System Setup

This chapter details system setup on the UTC-520A/B.
Sections include:

- A Quick Tour of the UTC-520A/B
- Installation procedures
- Running the BIOS Setup Program
- Installing System Software

2.1 A Quick Tour of the UTC-520A/B

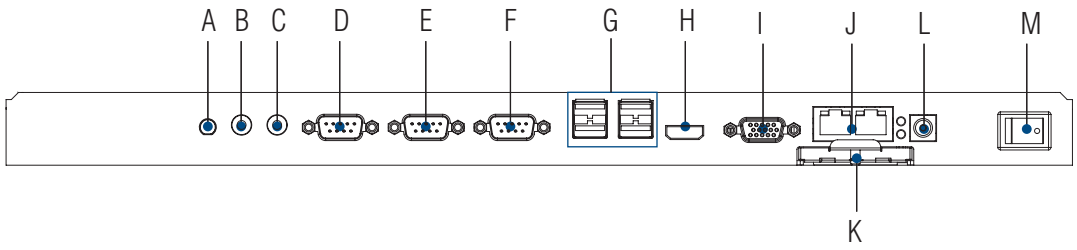
Before you start to set up the UTC-520A/B, take a moment to become familiar with the locations and purposes of the controls, drives, connectors and ports, which are illustrated in the figures below.

When you place the UTC-520A/B upright on the desktop, its front panel appears as shown in Figure 2.1.

Figure 2.1 Front view of UTC-520A/B

When you turn the UTC-520A/B around and look at its rear cover, you will find the I/O section as shown in Fig. 2.2. (The I/O section includes various I/O ports, including serial ports, Ethernet ports, USB ports, the VGA, and CFAST/ HDMI/MIC-IN/LINE-OUT slot so on.)

Figure 2.2 Rear view of UTC-520A/B



A. Antenna Port
B. Line-out
C. Min-in
D. COM3
E. COM2
F. COM1
G. USB 2.0 x 4
H. HDMI
I. VGA
J. LAN Ports x 2
K. CFast
L. DC Input
M. Power switch

2.2 Installation Procedures

2.2.1 Connecting the Power Cord

The UTC-520A/B can be powered by a DC electrical outlet. Be sure to always handle the power cords by holding the plug ends only. Please follow the Figure 2.5 to connect the male plug of the power cord to the DC inlet of the UTC-520A/B.

2.2.2 Connecting the Keyboard or Mouse

Before you start the computer, please connect keyboard port on the I/O section of the UTC-520A/B.

2.2.3 Switching on the Power

When you look at the rear side of the UTC-520A/B, you will see the power switch as shown in Figure 2.2.

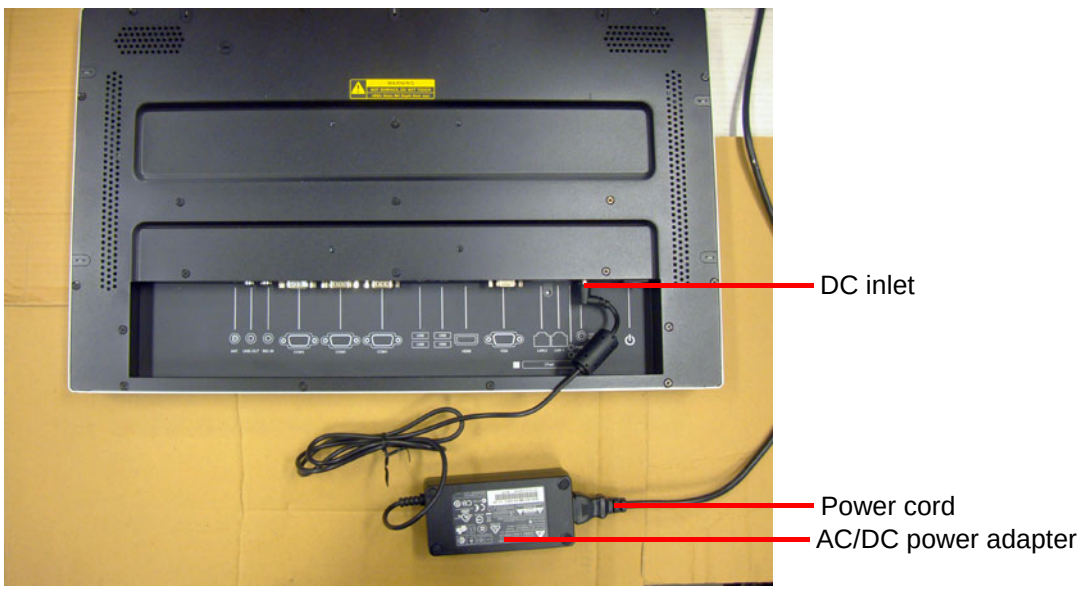


Figure 2.3 Connect the power cord to the DC inlet

2.3 Running the BIOS Setup Program

Your UTC-520A/B is likely to have been properly set up and configured by your dealer prior to delivery. You may still find it necessary to use the UTC-520A/B's BIOS (Basic Input-Output System) setup program to change system configuration information, such as the current date and time or your type of hard drive. The setup program is stored in read-only memory (ROM). It can be accessed either when you turn on or reset the UTC-520A/B, by pressing the “Del” key on your keyboard immediately after powering on the computer.

The settings you specify with the setup program are recorded in a special area of memory called CMOS RAM. This memory is backed up by a battery so that it will not be erased when you turn off or reset the system. Whenever you turn on the power, the system reads the settings stored in CMOS RAM and compares them to the equipment check conducted during the power on self-test (POST). If an error occurs, an error message will be displayed on screen, and you will be prompted to run the setup program.

2.4 Installing System Software

Recent releases of operating systems from major vendors include setup programs which load automatically and guide you through hard disk preparation and operating system installation. The guidelines below will help you determine the steps necessary to install your operating system on the UTC-520A/B hard drive.

Note! *Some distributors and system integrators may have already pre-installed system software prior to shipment of your UTC-520A/B.*

Installing software requires an installed HDD. Software can be loaded in the UTC-520A/B using any of four methods:

2.4.1 Method 1: Ethernet

You can use the Ethernet port to download software to the HDD.

2.4.2 Method 2: External USB CD-ROM

If required, insert your operating system's installation or setup diskette into the diskette drive until the release button pops out.

The BIOS of UTC-520A/B supports system boot-up directly from the CD-ROM drive. You may also insert your system installation CD-ROM into the CD-ROM drive.

Power on your UTC-520A/B or reset the system by pressing the “Ctrl+Alt+Del” keys simultaneously. The UTC-520A/B will automatically load the operating system from the diskette or CD-ROM.

If you are presented with the opening screen of a setup or installation program, follow the instructions on screen. The setup program will guide you through preparation of your hard drive, and installation of the operating system. If you are presented with an operating system command prompt, such as A:\>, then you must partition and format your hard drive, and manually copy the operating system files to it. Refer to your operating system user manual for instructions on partitioning and formatting a hard drive.

2.5 Installing the Drivers

After installing your system software, you will be able to set up the Ethernet, XGA, audio, and touchscreen functions. All drivers are stored in a CD-ROM disc entitled “Drivers and Utilities” which can be found in your accessory box.

The various drivers and utilities in the CD-ROM disc have their own text files which helps users install the drivers and understand their functions. These files are a very useful supplement to the information in this manual.

Note! *The drivers and utilities used for the UTC-520A/B are subject to change without notice.*

If in doubt, check Advantech's website or contact our application engineers for the latest information regarding drivers and utilities.

Chapter 3

Hardware Installation and Upgrading

This chapter details installing the UTC-520A/B hardware.

Sections include:

- **Introduction**
- **Installing the 2.5" Hard Disk Drive (HDD)**
- **Installing the CFAST**
- **Installing the Memory**
- **Installing the Wireless LAN Card**

3.1 Introduction

The UTC-520A/B consists of a PC-based computer that is housed in an Aluminum extrusion. You can install a HDD, DRAM, and Compact Flash by removing the rear cover. Any maintenance or hardware upgrades can be easily completed after removing the rear cover.

Warning! *Do not remove the rear cover until you have verified that no power is flowing within the UTC-520A/B. Power must be switched off and the power cord must be unplugged. Every time you service the UTC-520A/B, you should be aware of this.*

3.2 Installing the 2.5" Hard Disk Drive (HDD)

You can attach one Serial Advanced Technology Attachment (SATA) hard disk drive to the UTC-520A/B's internal controller. The SATA controller supports faster data transfer and allows the SATA hard drive to exceed 150 MB. The following are instructions for installation:

1. Detach and remove the rear cover.
2. Place the HDD in the metal bracket, and tighten the screws (see Figure 3.1).
3. The HDD cable (SATA 7P+1*5P-2.5/SATA(15+7)P) is next to the metal brace. Connect the HDD cable to the motherboard. Plug the other end of the cable into the SATA hard drive. 520A: CN6 (SATA signals) + CN4 (SATA power); 520B: CN14 (SATA signals) + CN15 (SATA power).
4. Put the rear cover on and tighten the screws.

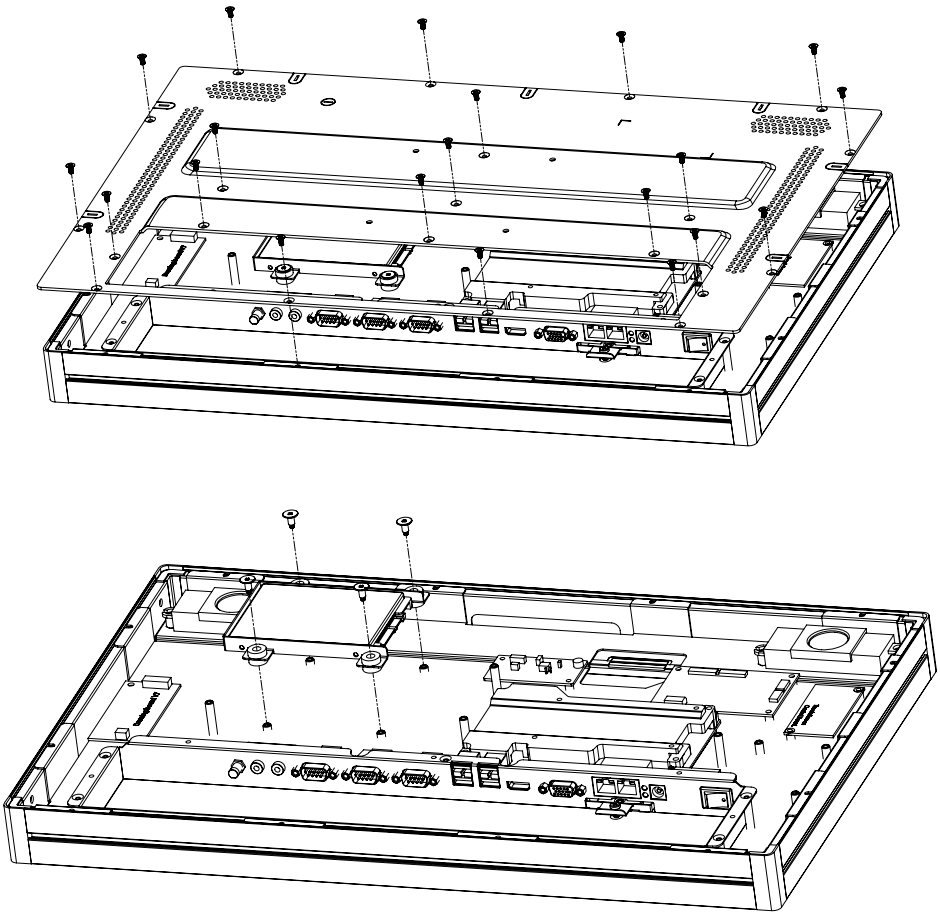


Figure 3.1 Installing primary 2.5" HDD

3.3 Installing the CFAST

1. Please follow the CFAST Card assembly as in the following diagram. (Please notice the direction of the CFAST)

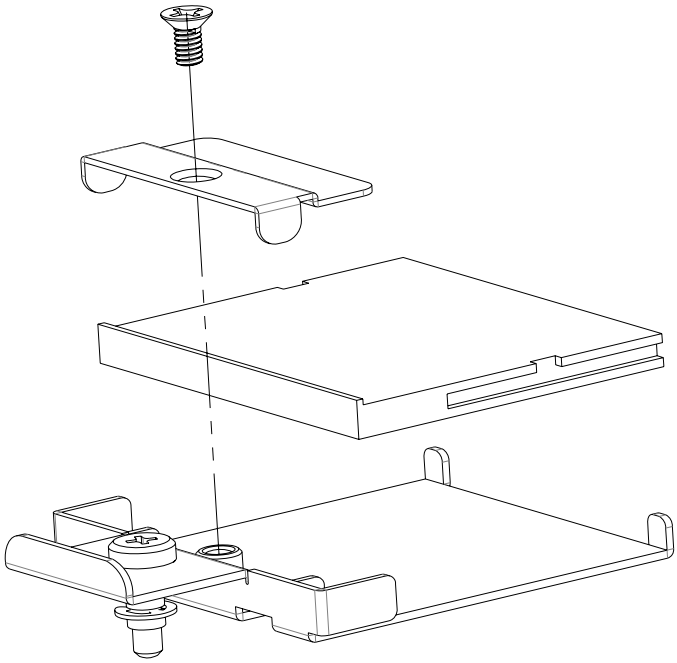


Figure 3.2 Installing the Compact Flash card

3.4 Installing the Memory

1. Detach and remove the rear cover.
2. Remove the 4 pcs screws on the Heatsink.
3. Turn to bottom side and remove the 2 pcs screws.
4. Install DRAM in the SO-DIMM socket.

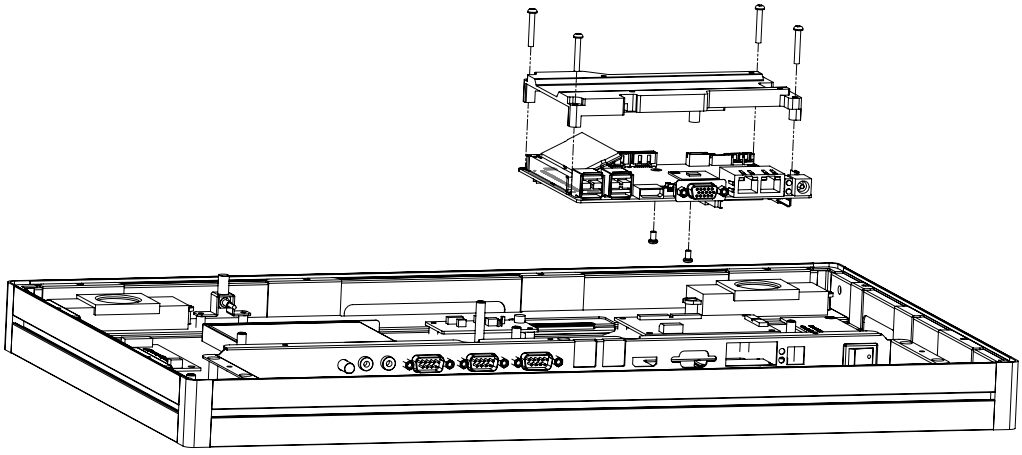
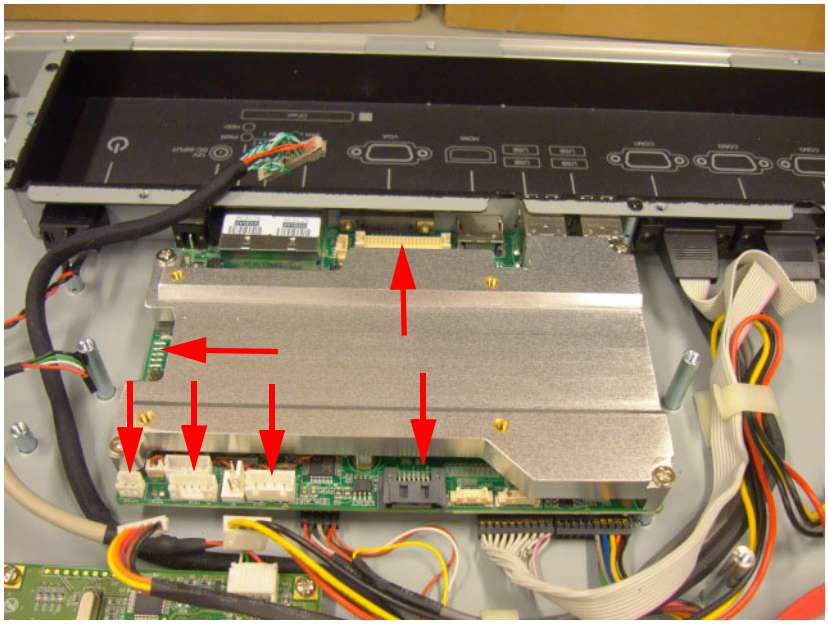


Figure 3.3 Installing the memory

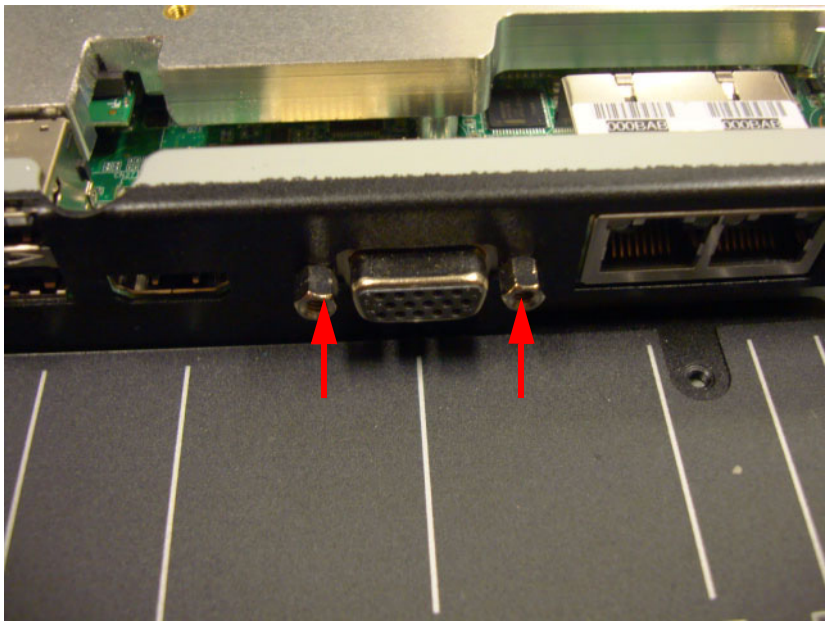
3.5 Installing the Wireless LAN Card

1. Remove 21 pcs screws of back cover.

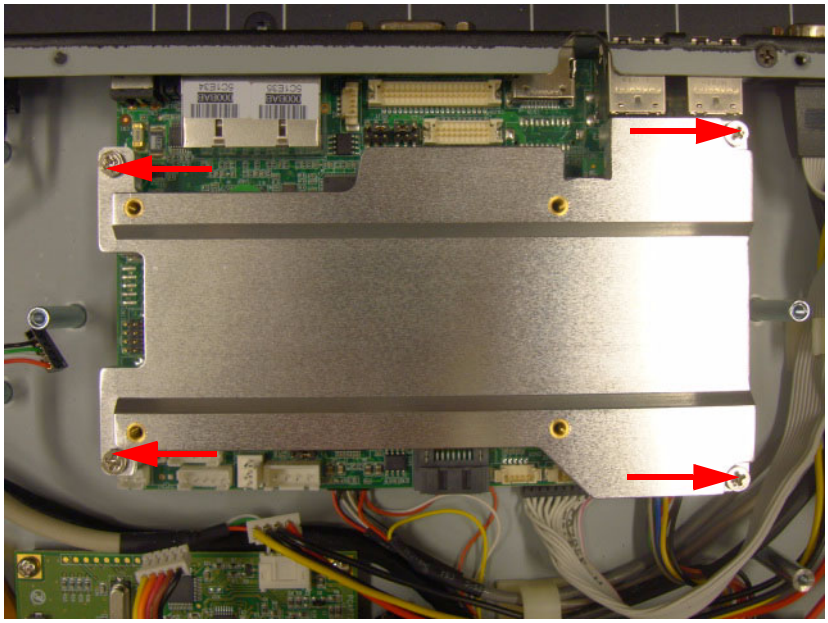
2. Remove cable connectors on M/B top side.



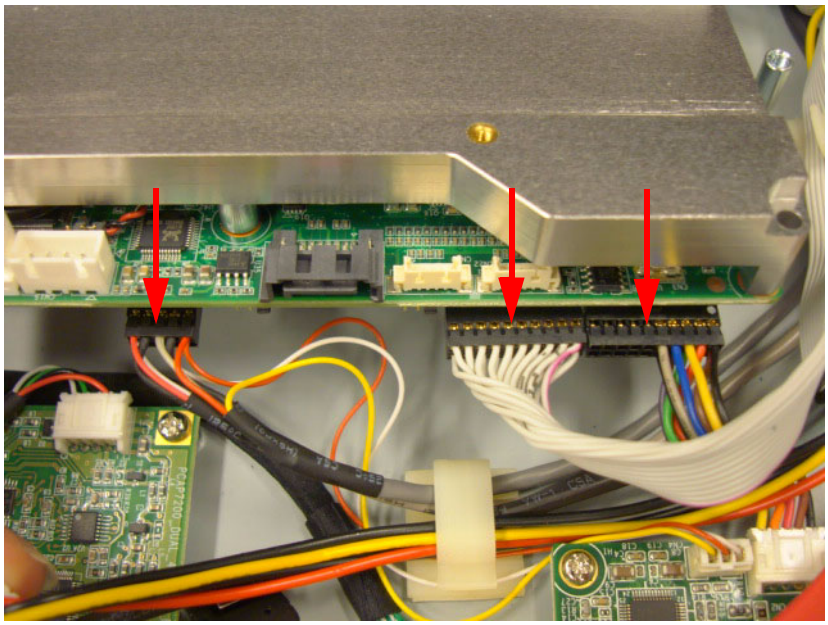
3. Remove 2 pcs screws on VGA connector.



Remove 4 pcs screws on M/B heatsink.

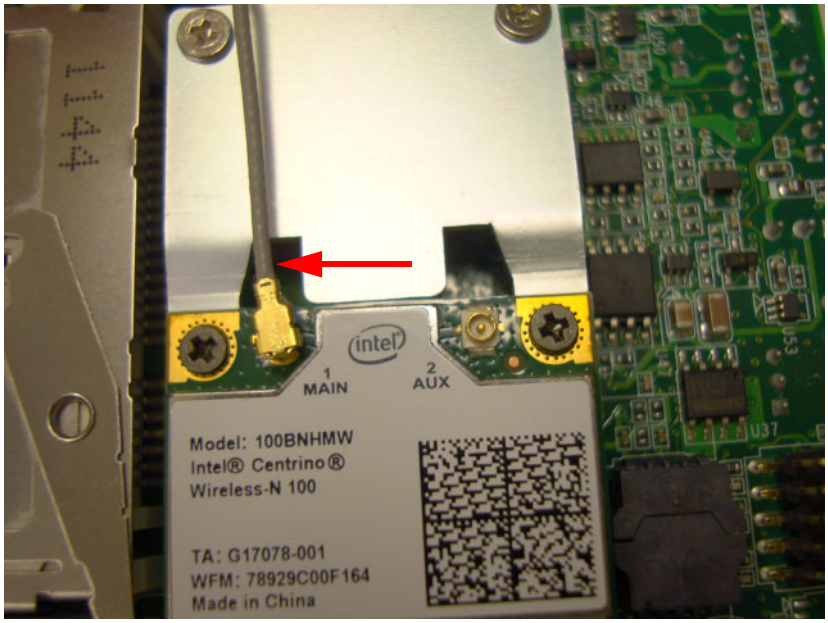


4. Remove cable connectors on M/B bottom side.



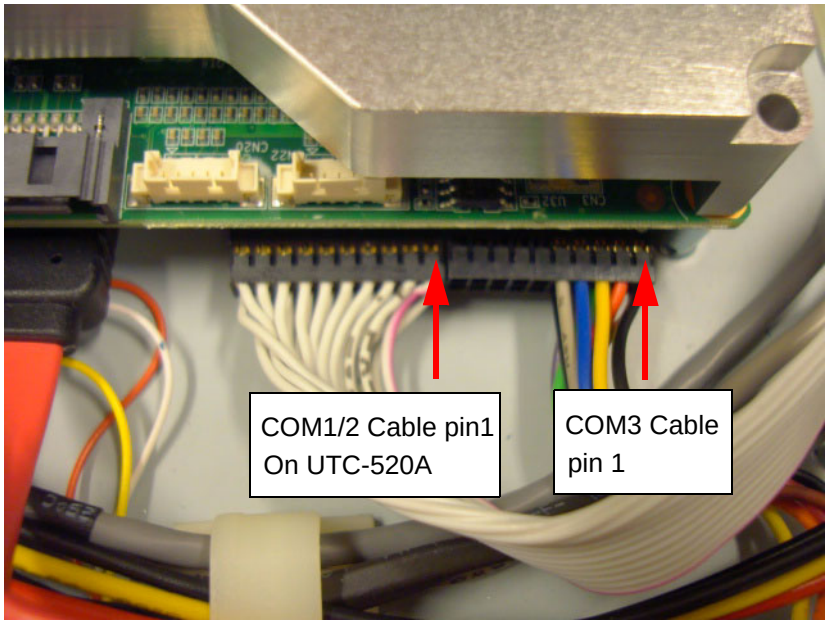
5. Install the WLAN card on mini PCI-e slot (M/B bottom side).

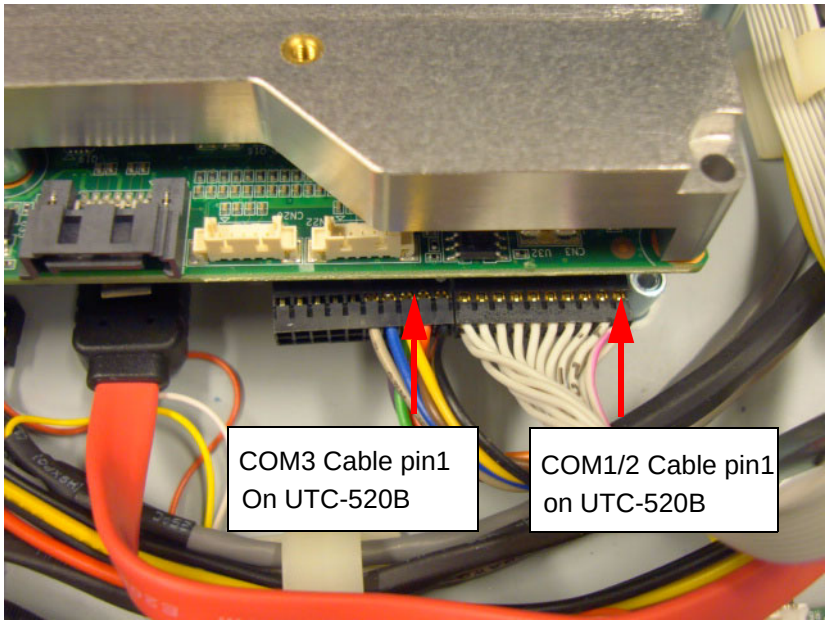
Connect the coaxial cable to "ANT1" on the WLAN card



6. Put the M/B back and Ass'y back the cables on M/B bottom side.

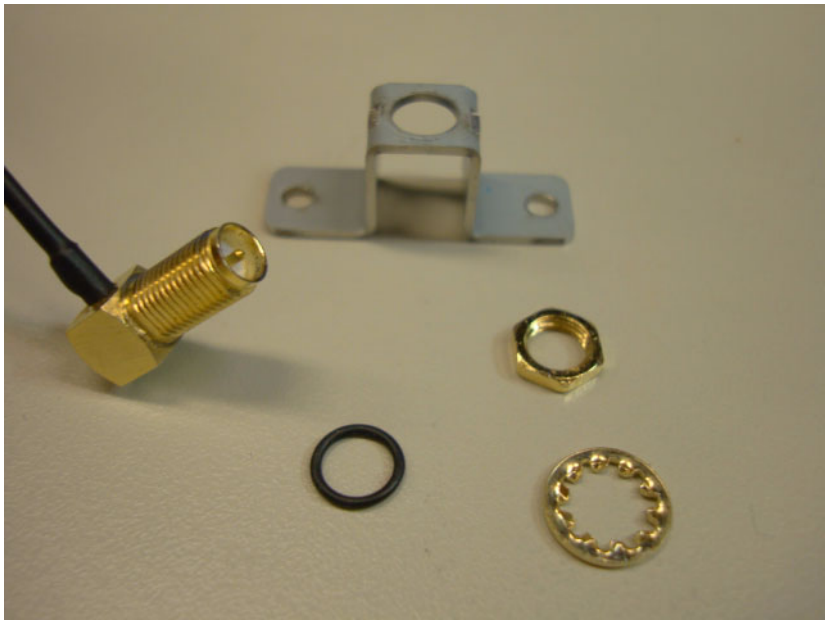
UTC-520A



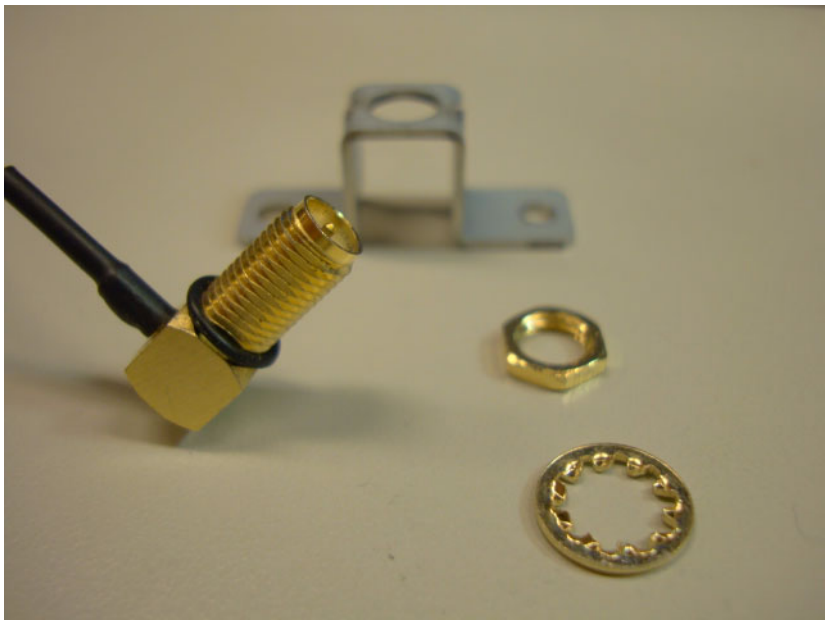


7. Ass'y back the cables on M/B top side.
   Ass'y back the 4 pcs screws on M/B heatsink.
   Ass'y back the 2 pcs screws on VGA connector.

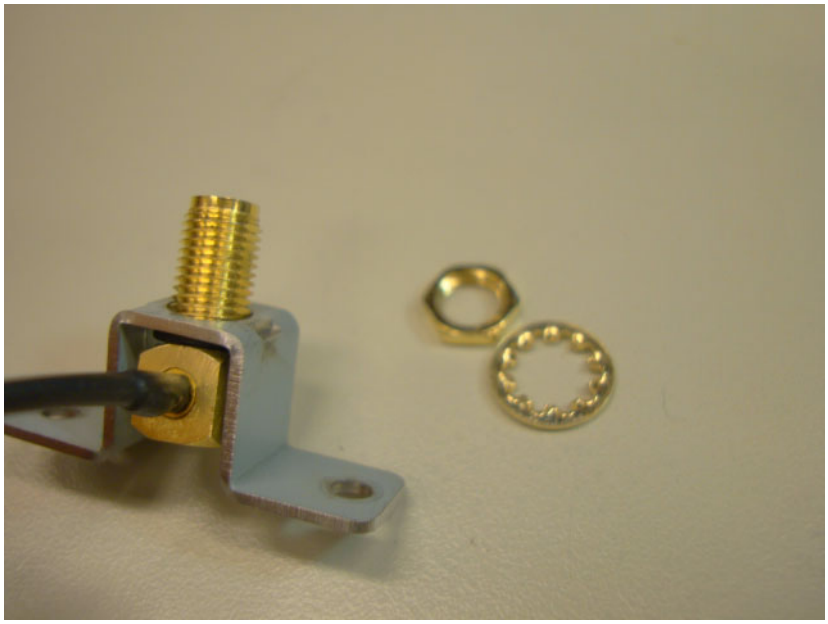
8. Coaxial cable & bracket.



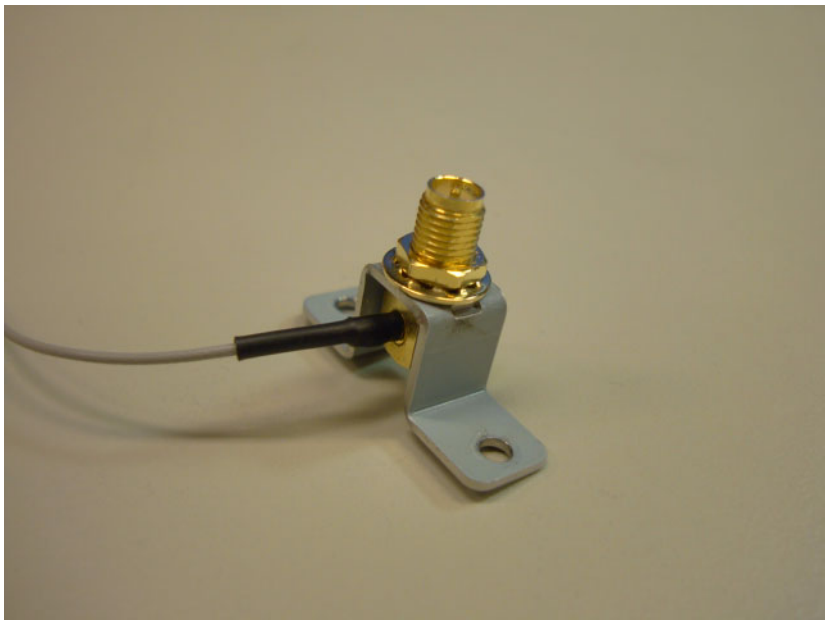
Put the black rubber gasket in SMA side first



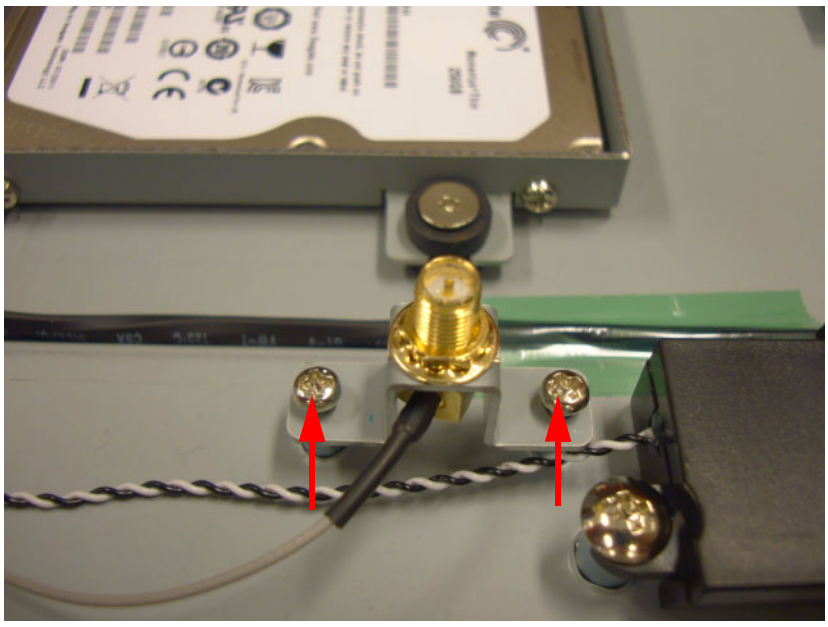
Put the bracket on SMA connector



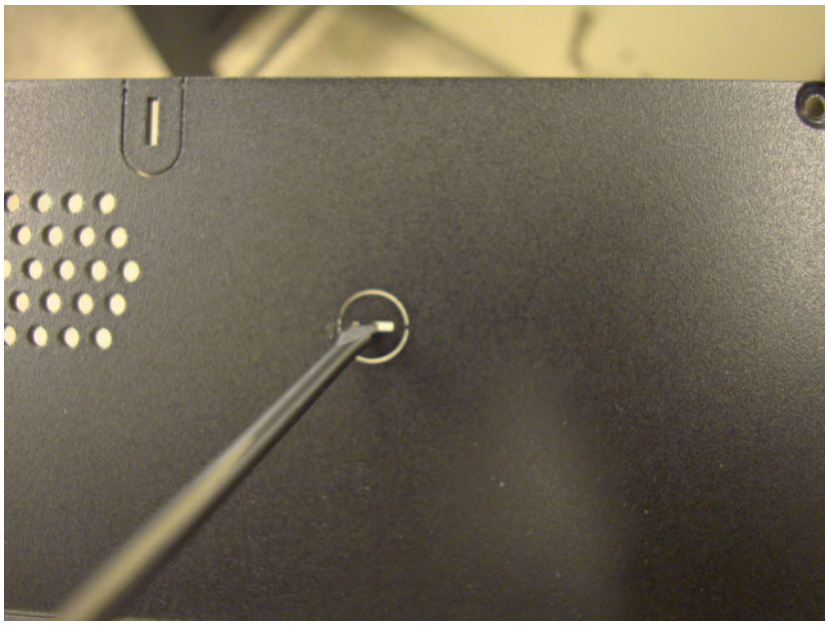
Install the Washer & Nut then turning tight.



9. Put the Antenna bracket on the stand and Ass'y the 2 pcs screws

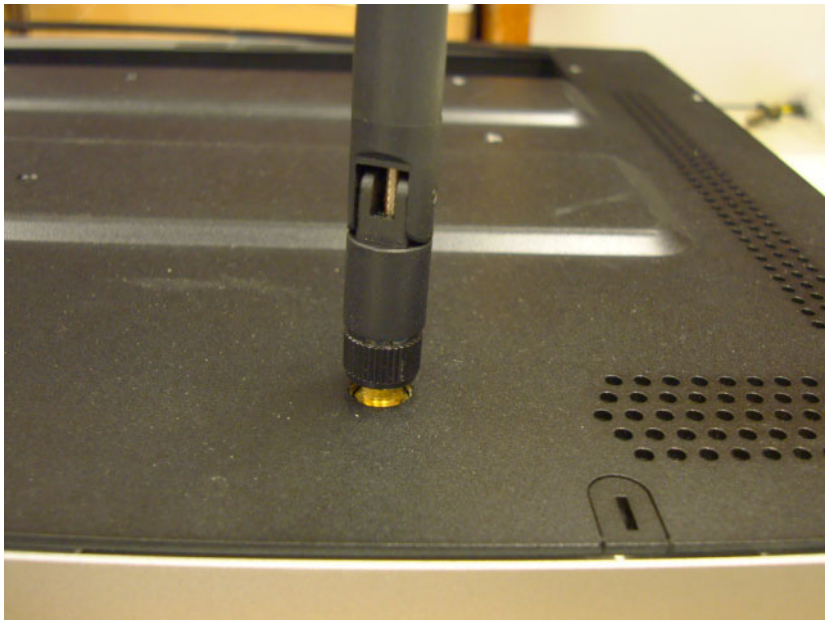


10. Remove the back cover "Hole cover" by Slotted Screwdriver.



11. Ass'y back the 21 pcs screws of back cover.

12. Install the Antenna on SMA connector



Chapter 4

Jumper Settings and Connectors

This chapter tells how to set up the UTC-520A/B hardware, including instructions on setting jumpers and connecting peripherals, switches and indicators. Be sure to read all the safety precautions before you begin the installation procedures.

Sections include:

- **Jumpers and Connectors**
- **CMOS Clear for External RTC (J5)**
- **COM Port Interface**
- **VGA Interface**
- **Watchdog Timer Configuration**

4.1 Jumpers and Connectors (UTC-520A)

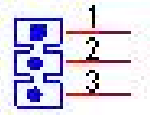
4.1.1 Jumpers

4.1.1.1 Jumper List

J1	Clear CMOS
J2	Auto Power On Setting
J3	LCD Power
J5	COM2 Setting

4.1.1.2 Jumper Settings

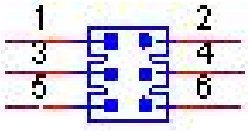
J1	**Clear CMOS**
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)*	Normal
(2-3)	Clear COMS



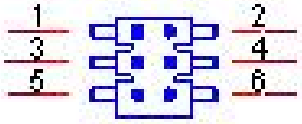
J2	**Auto Power On Setting**
Part Number	1653002101
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Setting	Function
NC*	Power Button for Power On
(1-2)	Auto Power On

J3	**LCD Power**
Part Number	1653003201
Footprint	HD_3x2P_79_D
Description	PIN HEADER 3*2P 180D(M) 2.0mm DIP SQUARE WO/Pb
Setting	Function
(1-3)	+3.3V
(3-5)*	+5V

(3-4)	+12V

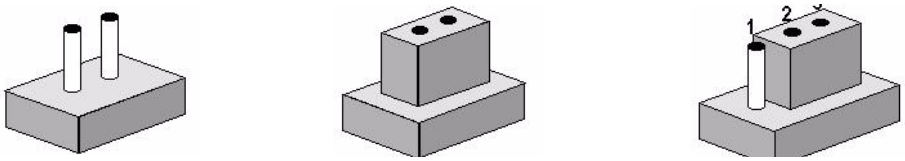


J5	**COM2 Setting**
Part Number	**1653003260**
Footprint	HD_3x2P_79
Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-2)*	RS232
(3-4)	RS485
(5-6)	RS422

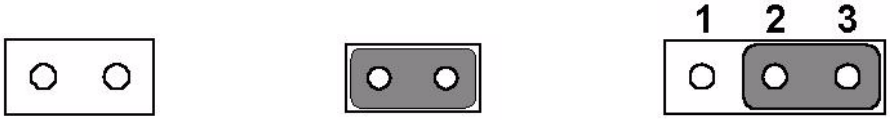


4.1.1.3 Jumper Description

Cards can be configured by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper, you connect the pins with the clip. To open a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically depicted in this manual as follows.



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Warning! *To avoid damaging the computer, always turn off the power supply before setting jumpers to clear CMOS. Before turning on the power supply, set the jumper back to 3.0 V Battery On.*

4.1.2 Connectors

4.1.2.1 Connector List

Table 4.1: Connectors	
CN1	Power Switch
CN2	Inverter Power Output
CN4	SATA Power
CN6	SATA 2
CN7	RS422/485
CN8	GPIO
CN10	DDR3 SODIMM Socket
CN12	Internal USB
CN13	SMBus
CN14	RJ45 Ethernet x 2
CN17	48 bits LVDS Panel
CN18	External USB (1/2)
CN19	External USB (3/4)
CN20	HDMI
CN22	12V Power Input
CN23	VGA
CN24	Audio
CN25	COM1/COM2
CN26	COM3/COM4
CN28	MIOe
CN29	PCIE Mini Card Holder
CN30	PCIE Mini Card
CN31	CFast

4.1.3 Mechanical

4.1.3.1 Jumper and Connector Location

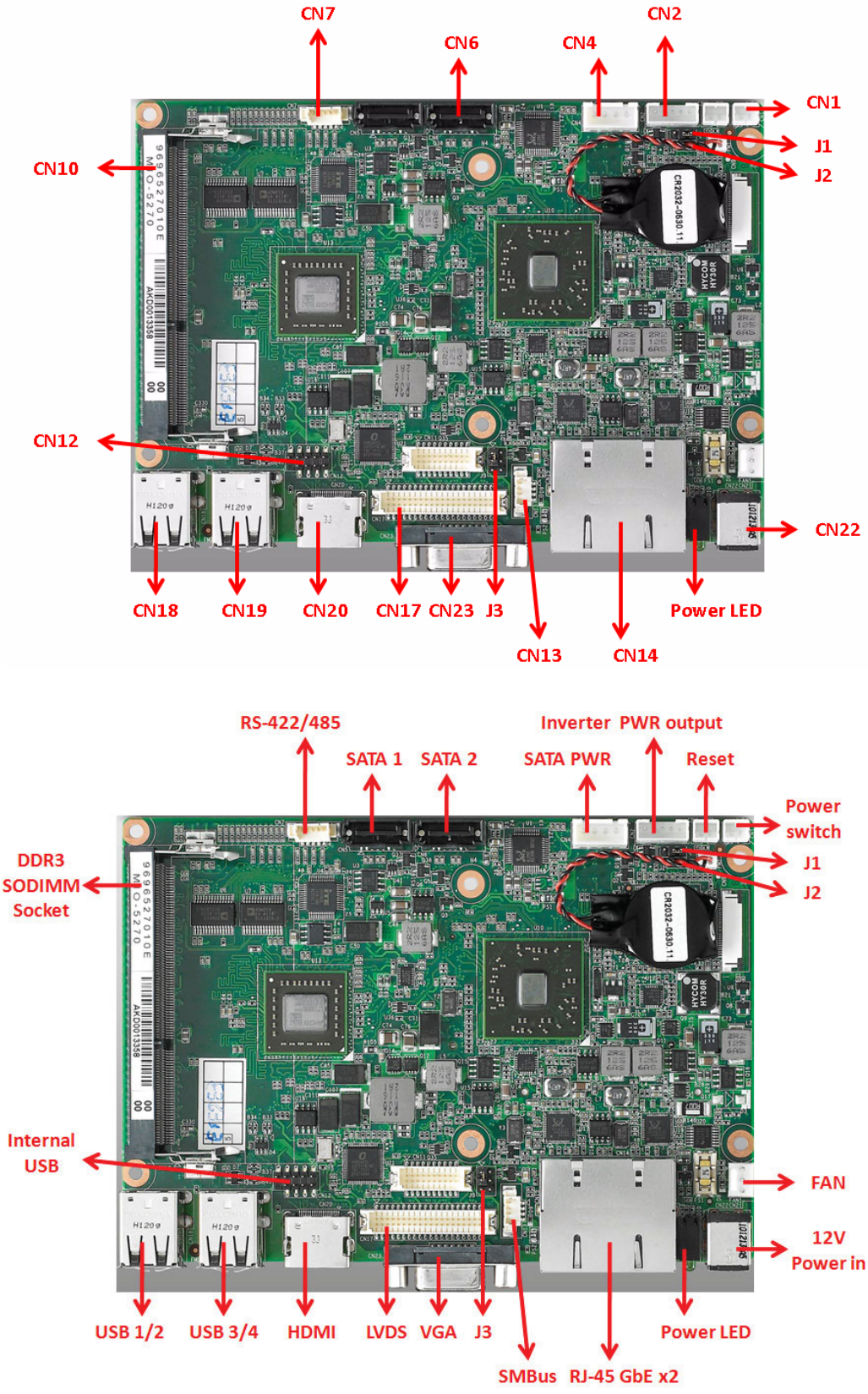


Figure 4.1 Jumper and Connector Layout (Component Side)

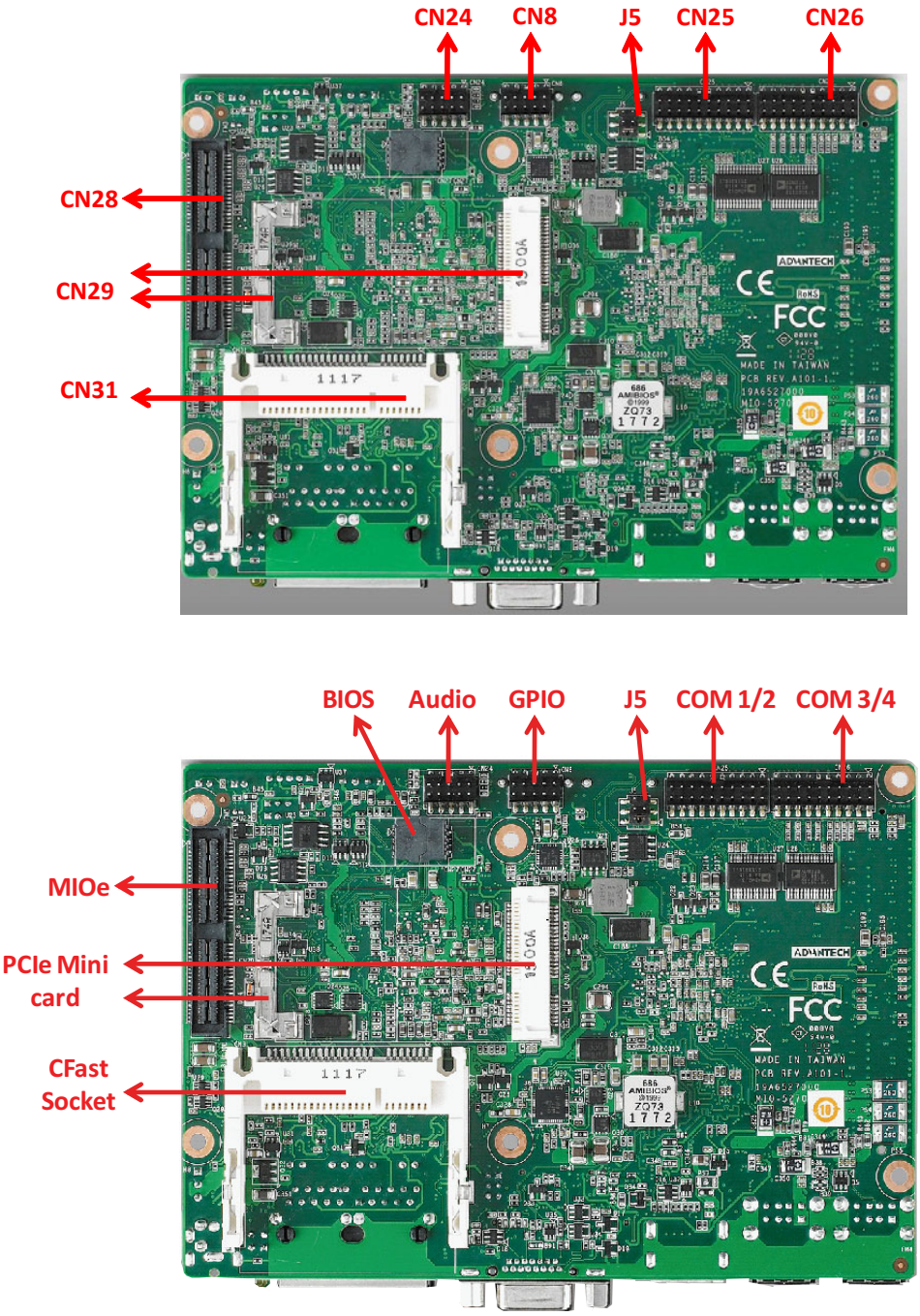


Figure 4.2 Jumper and Connector Layout (Solder Side)

4.2 Jumpers and Connectors (UTC-520B)

4.2.1 Jumpers

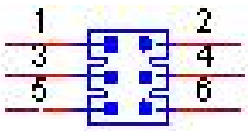
4.2.1.1 Jumper List

Table 4.2: Jumpers

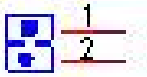
Label	Function
J2	48-bit LVDS2 Power
J3	Auto Power on setting
J4	COM2 Setting
J6	Clear CMOS

4.2.1.2 Jumper Settings

J2	**48 bits LVDS2 Power**
Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function
(1-3)	+3.3V
(3-5)*	+5V
(3-4)	+12V

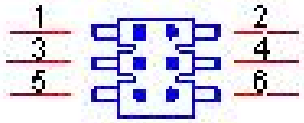


J3	**Auto Power On Setting**
Part Number	1653002101
Footprint	HD_2x1P_79_D
Description	PIN HEADER 2*1P 180D(M)SQUARE 2.0mm DIP W/O Pb
Setting	Function
NC*	Power Button for Power On
(1-2)	Auto Power On

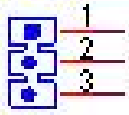


J4	**COM2 Setting**
Part Number	1653003260
Footprint	HD_3x2P_79
Description	PIN HEADER 3x2P 2.0mm 180D(M) SMD 21N22050
Setting	Function

(1-2)*	RS232
(3-4)	RS485
(5-6)	RS422

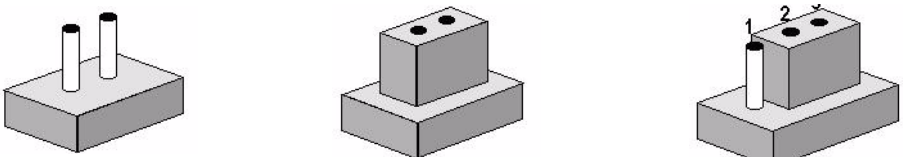


J6	**Clear CMOS**
Part Number	1653003101
Footprint	HD_3x1P_79_D
Description	PIN HEADER 3x1P 2.0mm 180D(M) DIP 2000-13 WS
Setting	Function
(1-2)*	Normal
(2-3)	Clear COMS

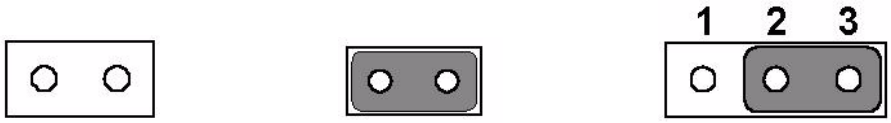


4.2.1.3 Jumper Description

Cards can be configured by setting jumpers. A jumper is a metal bridge used to close an electric circuit. It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To close a jumper, you connect the pins with the clip. To open a jumper, you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2 and 3. In this case you would connect either pins 1 and 2, or 2 and 3.



The jumper settings are schematically depicted in this manual as follows.



A pair of needle-nose pliers may be helpful when working with jumpers. If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Warning! *To avoid damaging the computer, always turn off the power supply before setting jumpers to clear CMOS. Before turning on the power supply, set the jumper back to 3.0 V Battery On.*

4.2.2 Connectors

4.2.2.1 Connector List

Table 4.3: Connectors

Label	Function
CN2	DC JACK
CN3	DDR3 SO-DIMM
CN5	Power Switch
CN9	GPIO
CN10	VGA
CN11	CFast
CN12	SIM Holder
CN13	Full-size Mini PCIe
CN14	SATA
CN15	SATA Power
CN16	USB 3/4
CN17	Internal USB
CN18	USB 1/2
CN19	COM1/COM2 RS-232
CN20	RS422/485 1
CN22	RS422/485 2
CN24	COM3/COM4 RS-232
CN25	SMBus
CN28	LAN
CN30	Audio
CN34	LVDS2 Inverter Power
CN35	48 bits LVDS2 Panel
CN36	HDMI
CN38	LVDS1 Inverter Power

4.2.3 Mechanical

4.2.3.1 Jumper and Connector Location

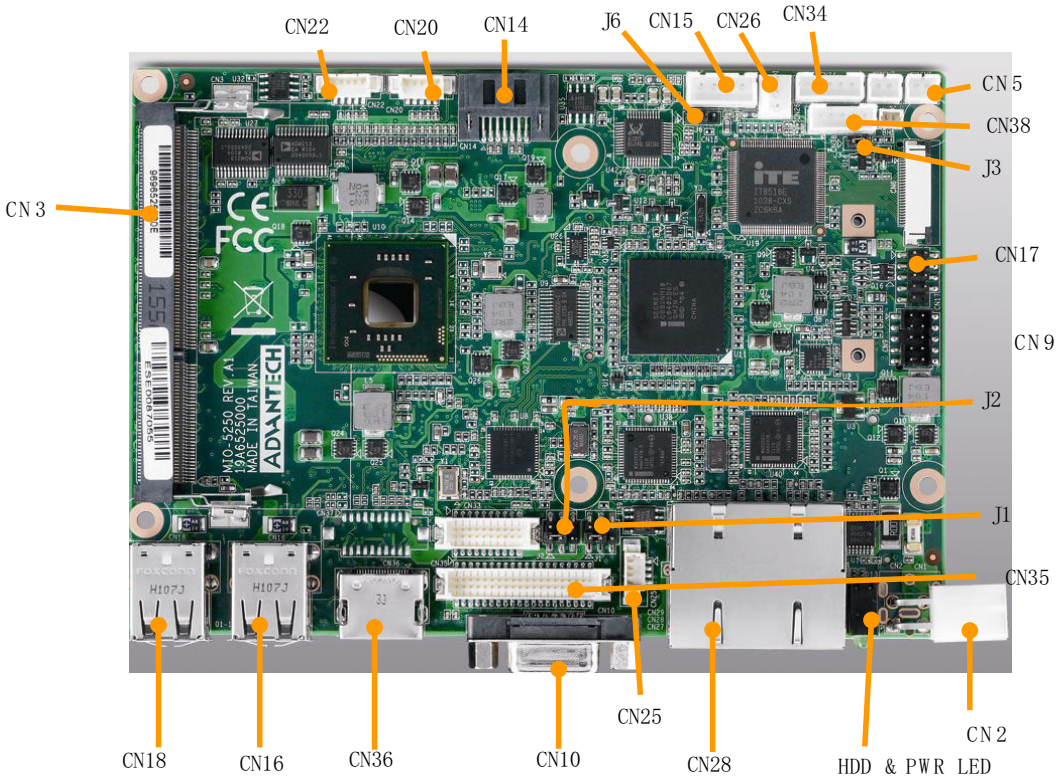


Figure 4.3 Jumper and Connector Layout (Component Side)

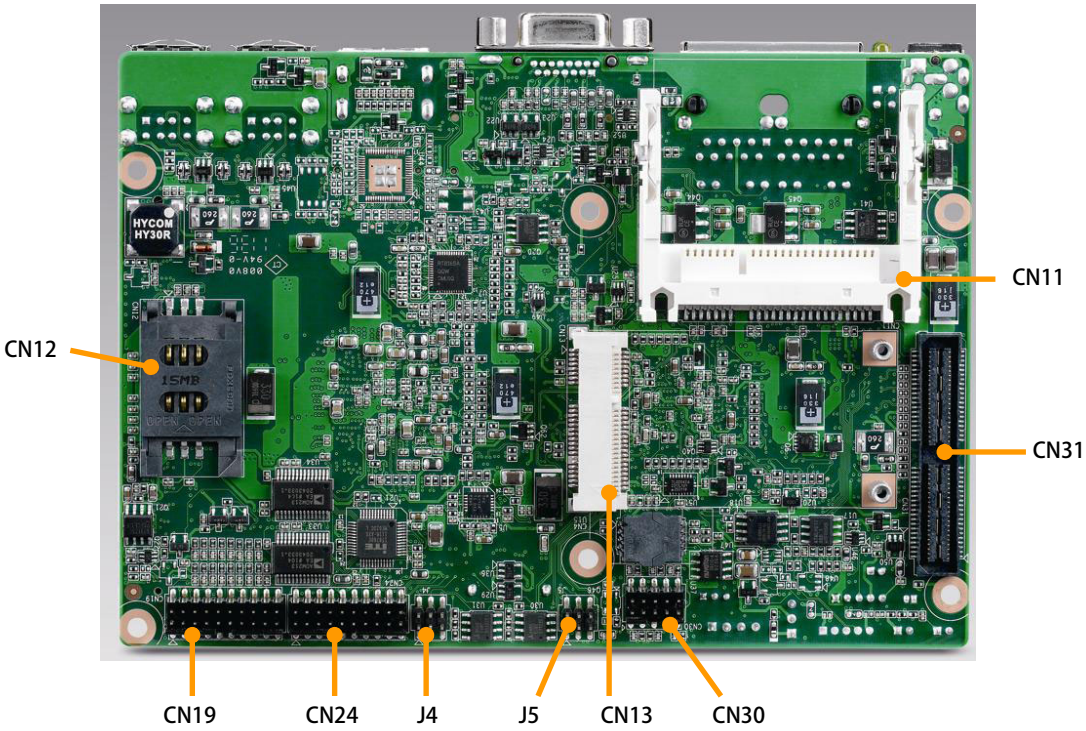


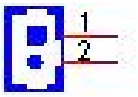
Figure 4.4 Jumper and Connector Layout (Solder Side)

Appendix A

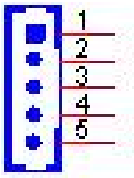
Pin Assignments

A.1 Pin Assignments (UTC-520A)

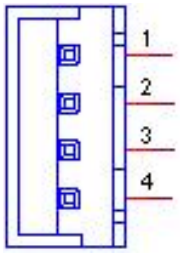
CN1	Power Switch
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	Pin Name
1	PSIN
2	GND



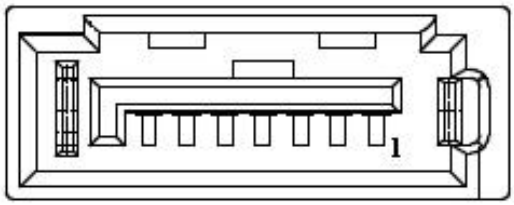
CN2	Inverter Power Output
Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V



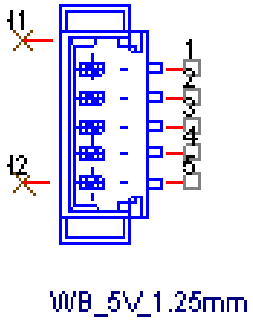
CN4	SATA Power
Part Number	1655001154
Footprint	WF_4P_98_BOX_R1_D
Description	WAFER BOX 4P 2.50mm 180D(M) DIP 24W1170-04S10-01
Pin	Pin Name
1	+5V
2	GND
3	GND
4	+12V



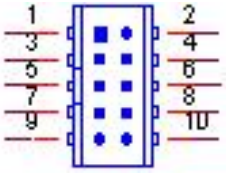
CN6	SATA 2
Part Number	1654007578
Footprint	SATA_7P_WATF-07DBN6SB1U
Description	Serial ATA 7P 1.27mm 180D(M) SMD WATF-07DBN6SB1U
Pin	Pin Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



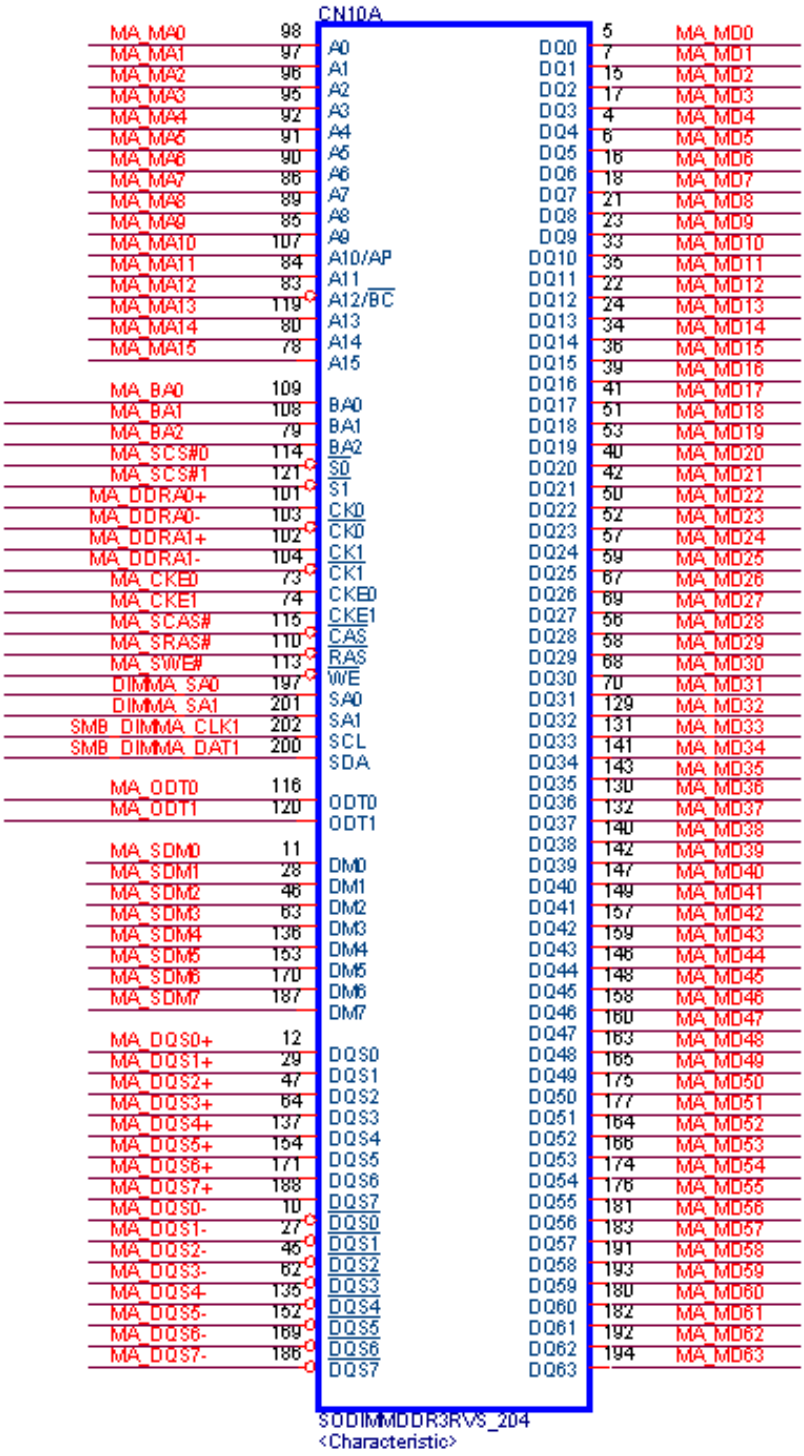
CN7	RS422/485
Part Number	1655304032
Footprint	WF_5P_49_BOX_85205
Description	WAFER 5P 1.25mm 180D(M) SMD 85205-05701
Pin	Pin Name
1	422RX-
2	422RX+
3	422/485TX+
4	422/485TX-
5	GND



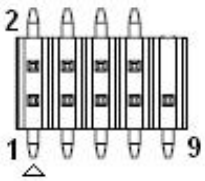
CN8	GPIO
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	+5V
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6
7	GPIO2
8	GPIO7
9	GPIO3
10	GND



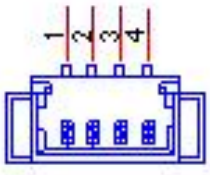
CN10	DDR3 SODIMM Socket
Part Number	1651001648
Footprint	DDR3_204P_2-2013311-1
Description	DDR3 SODIMM H=9.2mm 204P SMD 2-2013311-1
Pin	Pin Name



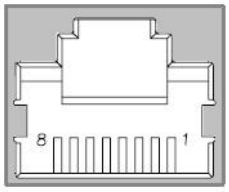
CN12	Internal USB
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND



CN13	SMBus
Part Number	1655904020
Footprint	FPC4V-125M
Description	WAFER 4P 1.25mm 180D(M) SMD 85205-04001
Pin	Pin Name
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V

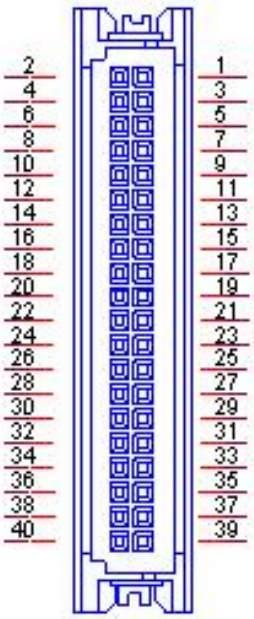


CN14	**LAN**
Part Number	1652003274
Footprint	RJ45_28P_RTB-19GB9J1A
Description	PHONE JACK RJ45 28P DIP RTB-19GB9J1A
Pin	Pin Name
1	TX+(10/100),BI_DA+(GHz)
2	TX-(10/100),BI_DA-(GHz)
3	RX+(10/100),BI_DB+(GHz)
4	BI_DC+(GHz)
5	BI_DC-(GHz)
6	RX-(10/100),BI_DB-(GHz)
7	BI_DD+(GHz)
8	BI_DD-(GHz)

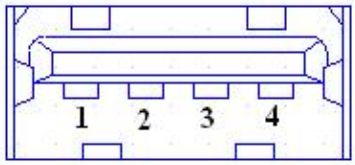


CN17	**48 bits LVDS Panel**
Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V
Pin	Pin Name
1	+3.3V, +5V or +12V
2	+3.3V, +5V or +12V
3	GND
4	GND
5	+3.3V, +5V or +12V
6	+3.3V, +5V or +12V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	GND
18	GND
19	LVDS0_D2-

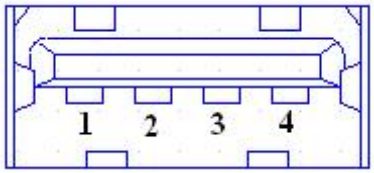
20	LVDS1_D2-
21	LVDS0_D2+
22	LVDS1_D2+
23	GND
24	GND
25	LVDS0_CLK-
26	LVDS1_CLK-
27	LVDS0_CLK+
28	LVDS1_CLK+
29	GND
30	GND
31	NC
32	NC
33	GND
34	GND
35	LVDS0_D3-
36	LVDS1_D3-
37	LVDS0_D3+
38	LVDS1_D3+
39	NC
40	NC



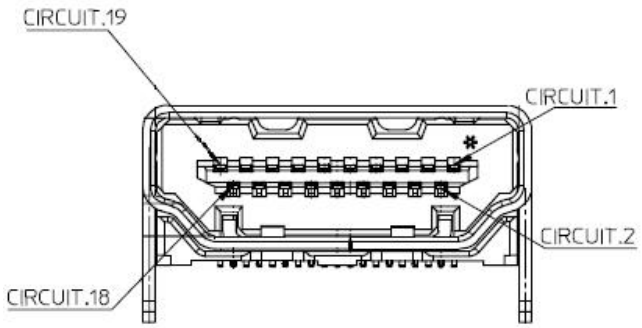
CN18	External USB
Part Number	1654009513
Footprint	USB_8P_UB1112C-8FDE-4F
Description	
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND



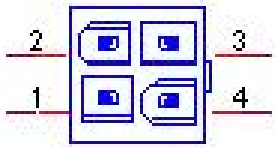
CN19	External USB
Part Number	1654009513
Footprint	USB_8P_UB1112C-8FDE-4F
Description	
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND



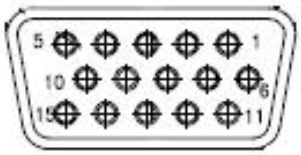
CN20	HDMI
Part Number	1654009225
Footprint	HDMI_19P_QJ51193-FFD4-7F
Description	HDMI Conn 19P 0.5mm 90D(M) SMD QJ51193-FFB4-7F
Pin	Pin Name
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2®C
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1®C
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0®C
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock®C
13	Reserved
14	Reserved
15	SCL
16	SDA
17	DDC Ground
18	+5V Power
19	Hot Plug Detect



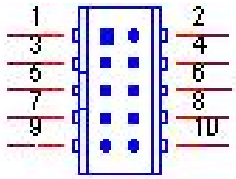
CN22	12V Power Input
Part Number	1655404090
Footprint	WF_2x2P_165_BOX_RA_D_740SP
Description	ATX PWR CONN. 2x2P 4.2mm 180D(M) DIP 24W4310-04S
Pin	Pin Name
1	GND
2	GND
3	+12V
4	+12V



CN23	VGA
Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	Pin Name
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK

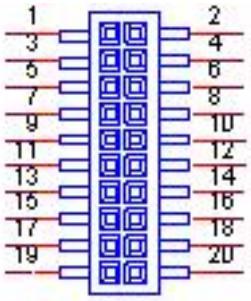


CN24	Audio
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L

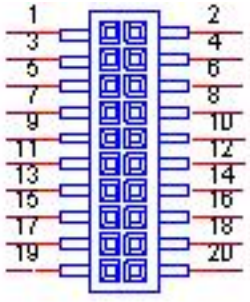


CN25	COM1/COM2
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	
Pin	Pin Name
1	DCD1#
2	DSR1#
3	RXD1
4	RTS1#
5	TXD1
6	CTS1#
7	DTR1#
8	RI1#
9	GND
10	GND
11	DCD2#
12	DSR2#
13	RXD2
14	RTS2#
15	TXD2
16	CTS2#
17	DTR2#
18	RI2#

19	GND
20	GND

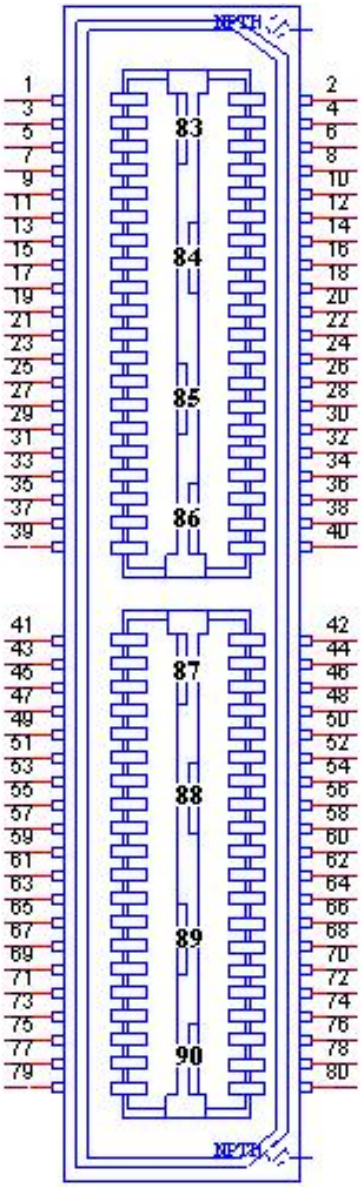


CN26	**COM3/COM4**
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	
Pin	Pin Name
1	DCD3#
2	DSR3#
3	RXD3
4	RTS3#
5	TXD3
6	CTS3#
7	DTR3#
8	RI3#
9	GND
10	GND
11	DCD4#
12	DSR4#
13	RXD4
14	RTS4#
15	TXD4
16	CTS4#
17	DTR4#
18	RI4#
19	GND
20	GND

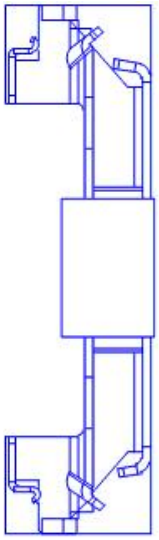


CN28	MIOe
Part Number	1654006235
Footprint	BB_40x2P_32_1625x285_2HOLD
Description	
Pin	Pin Name
1	GND
2	GND
3	PCIE_RX0+
4	PCIE_TX0+
5	PCIE_RX0-
6	PCIE_TX0-
7	GND
8	GND
9	PCIE_RX1+
10	PCIE_TX1+
11	PCIE_RX1-
12	PCIE_TX1-
13	GND
14	GND
15	PCIE_RX2+
16	PCIE_TX2+
17	PCIE_RX2-
18	PCIE_TX2-
19	GND
20	GND
21	PCIE_RX3+
22	PCIE_TX3+
23	PCIE_RX3-
24	PCIE_TX3-
25	GND
26	GND
27	PCIE_CLK+
28	LOUTL
29	PCIE_CLK-
30	LOUTR
31	GND
32	AGND
33	SMB_CLK
34	NC
35	SMB_DAT
36	NC
37	PCIE_WAKE#
38	NC
39	RESET#
40	NC
41	SLP_S3#

42	CLK33M
43	SLP_S5#
44	LPC_AD0
45	DDP_HPD
46	LPC_AD1
47	GND
48	LPC_AD2
49	DDP_AUX+
50	LPC_AD3
51	DDP_AUX-
52	LPC_DRQ#0
53	GND
54	LPC_SERIRQ
55	DDP_D0+
56	LPC_FRAME#
57	DDP_D0-
58	GND
59	GND
60	USB0_D+
61	DDP_D1+
62	USB0_D-
63	DDP_D1-
64	GND
65	GND
66	USB1_D+/USB_SSTX+
67	DDP_D2+
68	USB1_D-/USB_SSTX-
69	DDP_D2-
70	GND
71	GND
72	USB2_D+/USB_SSRX+
73	DDP_D3+
74	USB2_D-/USB_SSRX-
75	DDP_D3-
76	GND
77	GND
78	USB_OC#
79	+12VSB
80	NC
83	GND
84	GND
85	GND
86	GND
87	+5VSB
88	+5VSB
89	+5VSB
90	+5VSB

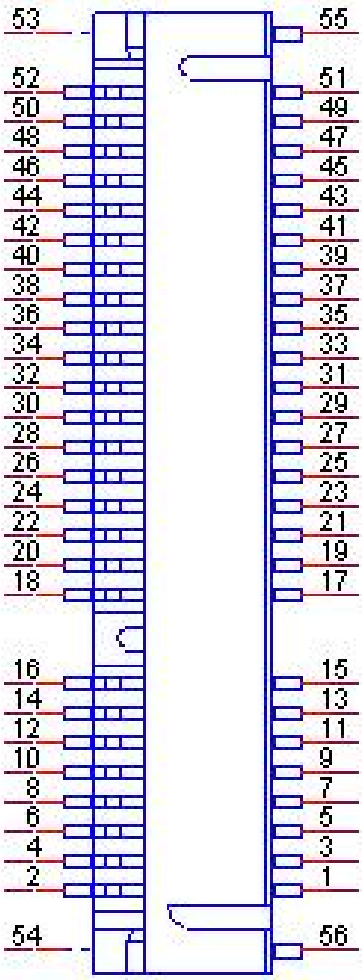

MPTH
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
83
84
85
86
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
87
88
89
90
MPTH

CN29	PCIe Mini Card Holder
Part Number	1654002539
Footprint	FOX_AS0B226-S68K7F_HOLDER
Description	MINI PCI Express 52P 6.8mm 90D SMD AS0B226-S68K7
Pin	Pin Name
1	GND
2	GND
3	GND
4	GND
5	NC
6	NC

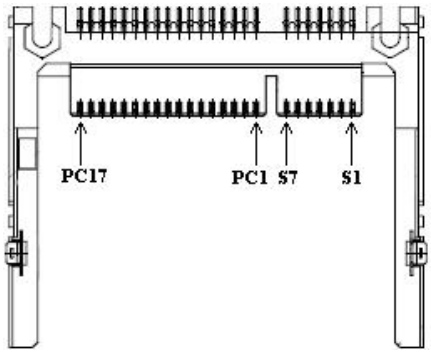


CN30	PCIe Mini Card
Part Number	1654002538
Footprint	FOX_AS0B226-S68K7F
Description	MINI PCI Express 52P 6.8mm 90D SMD AS0B226-S68N7
Pin	Pin Name
1	WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	NC
9	GND
10	NC
11	REFCLK-
12	NC
13	REFCLK+

14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	NC
21	GND
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	PETn0
32	SMB_DAT
33	PETp0
34	GND
35	GND
36	USB D-
37	GND
38	USB D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB
53	NC
54	NC
55	GND
56	GND

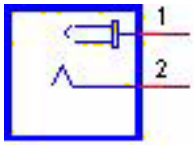

53
55
52
51
50
49
48
47
46
45
44
43
42
41
40
39
38
37
36
35
34
33
32
31
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
54
56

CN31	**CFast**
Part Number	1653004402
Footprint	CFAST_24P_N7E24
Description	CFast 24P 1.27mm 90D(M) SMD N7E24-M516RA-50
Pin	Pin Name
PC1	CDI
PC2	GND
PC3	NC
PC4	NC
PC5	NC
PC6	NC
PC7	GND
PC8	NC
PC9	NC
PC10	NC
PC11	NC
PC12	NC
PC13	+3.3V
PC14	+3.3V
PC15	GND
PC16	GND
PC17	CDO
S1	GND
S2	TX+
S3	TX-
S4	GND
S5	RX-
S6	RX+
S7	GND



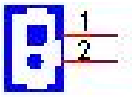
A.2 Pin Assignments (UTC-520B)

CN2	DC JACK
Part Number	1652005624
Footprint	PJ_2P_2DC-G213B200
Description	DC POWER JACK 2.5mm 90D(M) DIP 2DC-G213B200
Pin	Pin Name
1	+VIN
2	GND



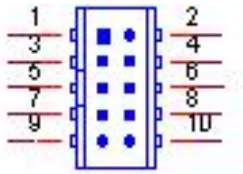
CN3	SODIMMDDR3RVS_204
Part Number	1651001648
Footprint	DDR3_204P_2-2013311-1
Description	DDR3 SODIMM H=9.2mm 204P SMD 2-2013311-1
Pin	Pin Name

CN5	**Power Switch**
Part Number	1655302020
Footprint	WF_2P_79_BOX_R1_D
Description	WAFER BOX 2P 2.0mm 180D(M) DIP A2001WV2-2P
Pin	Pin Name
1	PSIN
2	GND

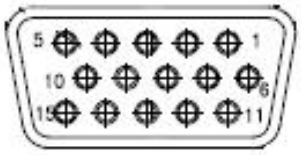


CN9	**GPIO**
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	+5V
2	GPIO4
3	GPIO0
4	GPIO5
5	GPIO1
6	GPIO6

7	GPIO2
8	GPIO7
9	GPIO3
10	GND

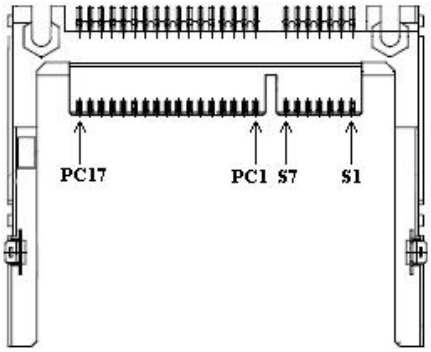


CN10	**VGA**
Part Number	1654000055
Footprint	DBVGA-VF5MS
Description	D-SUB Conn. 15P 90D(F) DIP 070242FR015S200ZU
Pin	Pin Name
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	DDAT
13	HSYNC
14	VSYNC
15	DCLK

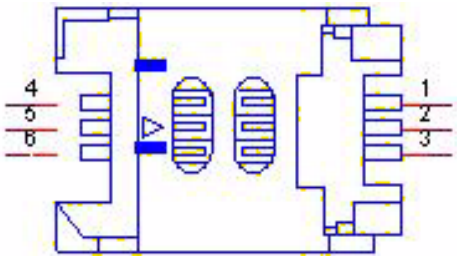


CN11	**CFast**
Part Number	1653004849
Footprint	CFAST_24P_N7G24
Description	CFast 24P 1.27mm 90D(M) SMD N7G24-A0B2RA-10-0HT-
Pin	Pin Name
PC1	CDI
PC2	GND

PC3	NC
PC4	NC
PC5	NC
PC6	NC
PC7	GND
PC8	NC
PC9	NC
PC10	NC
PC11	NC
PC12	NC
PC13	+3.3V
PC14	+3.3V
PC15	GND
PC16	GND
PC17	CDO
S1	GND
S2	TX+
S3	TX-
S4	GND
S5	RX-
S6	RX+
S7	GND

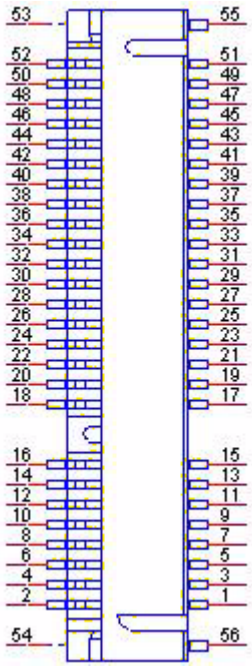


CN12	**SIM**
Part Number	1654000639
Footprint	SIM-WL608C
Description	SIM card conn 6p 90D(F)SMD WO/Pb WL608C3-M04-7F
Pin	Pin Name
1	UIM_PWR
2	UIM_RESET
3	UIM_CLK
4	GND
5	UIM_VPP
6	UIM_DATA

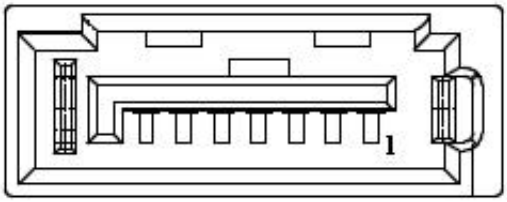


CN13	**Mini PCIE**
Part Number	1654006715
Footprint	MINIPCI_52P_88911-5204M
Description	
Pin	Pin Name
1	WAKE#
2	+3.3VSB
3	NC
4	GND
5	NC
6	+1.5V
7	NC
8	NC
9	GND
10	NC
11	REFCLK-
12	NC
13	REFCLK+
14	NC
15	GND
16	NC
17	NC
18	GND
19	NC
20	NC
21	GND
22	PERST#
23	PERn0
24	+3.3VSB
25	PERp0
26	GND
27	GND
28	+1.5V
29	GND
30	SMB_CLK
31	PETn0
32	SMB_DAT
33	PETp0
34	GND
35	GND

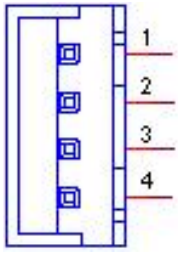
36	USB D-
37	GND
38	USB D+
39	+3.3VSB
40	GND
41	+3.3VSB
42	NC
43	GND
44	NC
45	NC
46	NC
47	NC
48	+1.5V
49	NC
50	GND
51	NC
52	+3.3VSB
H3	GND
H4	GND
H5	NC
H6	NC



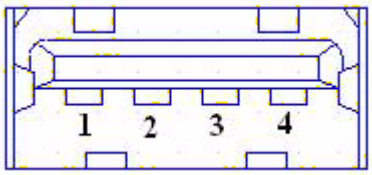
CN14	SATA
Part Number	1654004118
Footprint	SATA_7P_50_WATA-07DPLH4U
Description	Serial ATA 7P 1.27mm 90D(M) SMD WATA-07DPLH4U
Pin	Pin Name
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



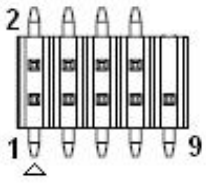
CN15	SATA Power
Part Number	1655001154
Footprint	WF_4P_98_BOX_R1_D
Description	WAFER BOX 4P 2.50mm 180D(M) DIP 24W1170-04S10-01
Pin	Pin Name
1	+5V
2	GND
3	GND
4	+12V



CN16	USB3/4
Part Number	1654009513
Footprint	USB_8P_UB1112C-8FDE-4F
Description	USB CONN. 8P 2.0mm 90D DIP UB1112C-8FDE-4F
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND

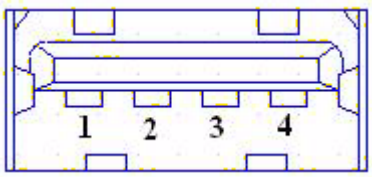


CN17	**Internal USB**
Part Number	1653005260
Footprint	HD_5x2P_79_N10
Description	PIN HEADER 2x5P 2.0mm 180D(M) SMD 21N22050
Pin	Pin Name
1	+5V
2	+5V
3	A_D-
4	B_D-
5	A_D+
6	B_D+
7	GND
8	GND
9	GND

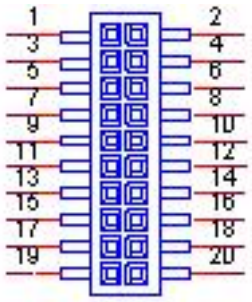


Matching Cable: 1703100260 1703100121

CN18	USB 1/2
Part Number	1654009513
Footprint	USB_8P_UB1112C-8FDE-4F
Description	USB CONN. 8P 2.0mm 90D DIP UB1112C-8FDE-4F
Pin	Pin Name
1	+5V
2	D-
3	D+
4	GND

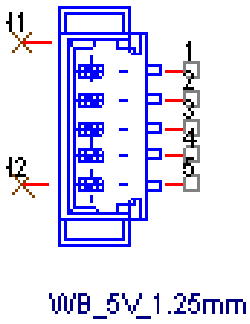


CN19	**COM1/COM2 RS-232**
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	BOX HEADER 10x2P 2.0mm 180D(M)SMD 23N685B-20M10B
Pin	Pin Name
1	DCD1#
2	DSR1#
3	RXD1
4	RTS1#
5	TXD1
6	CTS1#
7	DTR1#
8	RI1#
9	GND
10	GND
11	DCD2#
12	DSR2#
13	RXD2
14	RTS2#
15	TXD2
16	CTS2#
17	DTR2#
18	RI2#
19	GND
20	GND

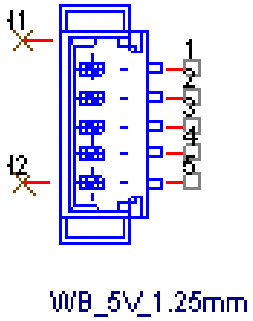


Matching Cable: 1701200220

CN20	**RS422/485 1**
Part Number	1655304032
Footprint	WF_5P_49_BOX_85205
Description	WAFER 5P 1.25mm 180D(M) SMD 85205-05701
Pin	Pin Name
1	422RX-
2	422RX+
3	422/485TX+
4	422/485TX-
5	GND

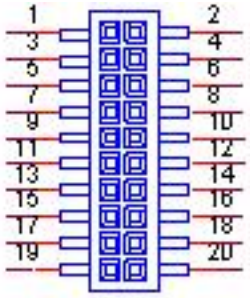


CN22	RS422/485 2
Part Number	1655304032
Footprint	WF_5P_49_BOX_85205
Description	WAFER 5P 1.25mm 180D(M) SMD 85205-05701
Pin	Pin Name
1	422RX-
2	422RX+
3	422/485TX+
4	422/485TX-
5	GND



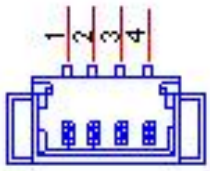
CN24	COM3/COM4 RS-232
Part Number	1653004793
Footprint	HD_10x2P_79_23N685B-20M10
Description	BOX HEADER 10x2P 2.0mm 180D(M)SMD 23N685B-20M10B
Pin	Pin Name
1	DCD3#
2	DSR3#
3	RXD3
4	RTS3#
5	TXD3
6	CTS3#
7	DTR3#
8	RI3#
9	GND
10	GND
11	DCD4#
12	DSR4#
13	RXD4
14	RTS4#
15	TXD4
16	CTS4#
17	DTR4#
18	RI4#
19	GND

20	GND

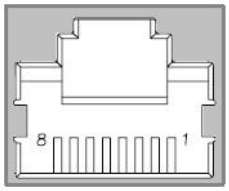


Matching Cable: 1701200220

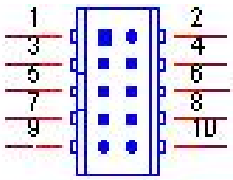
CN25	**SMBus**
Part Number	1655904020
Footprint	FPC4V-125M
Description	WAFER 4P 1.25mm 180D(M) SMD 85205-04001
Pin	Pin Name
1	GND
2	SMB_DAT
3	SMB_CLK
4	+5V



CN14	LAN
Part Number	1652003274
Footprint	RJ45_28P_RTB-19GB9J1A
Description	PHONE JACK RJ45 28P DIP RTB-19GB9J1A
Pin	Pin Name
1	TX+(10/100), BI_DA+(GHz)
2	TX-(10/100), BI_DA-(GHz)
3	RX+(10/100), BI_DB+(GHz)
4	BI_DC+(GHz)
5	BI_DC-(GHz)
6	RX-(10/100), BI_DB-(GHz)
7	BI_DD+(GHz)
8	BI_DD-(GHz)

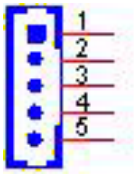


CN30	Audio
Part Number	1653004099
Footprint	HD_5x2P_79_23N685B-10M10
Description	BOX HEADER 5x2P 2.00mm 180D(M) SMD 23N685B-10M10
Pin	Pin Name
1	LOUTR
2	LINR
3	GND
4	GND
5	LOUTL
6	LINL
7	GND
8	GND
9	MIC1R
10	MIC1L



Matching Cable: 1703100152

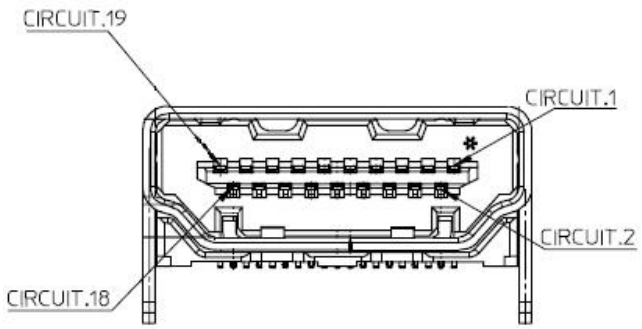
CN34	48 bits LVDS2 Inverter Power
Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V



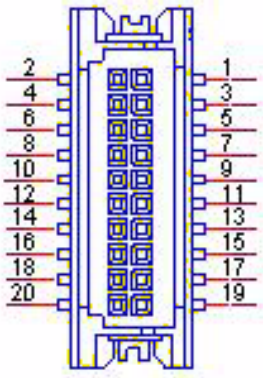
CN35	48 bits LVDS2 Panel
Part Number	1653920200
Footprint	SPH20X2
Description	B/B Conn. 40P 1.25mm 90D SMD DF13-40DP-1.25V(91)
Pin	Pin Name
1	+5V or +3.3V
2	+5V or +3.3V
3	GND
4	GND
5	+5V or +3.3V
6	+5V or +3.3V
7	LVDS0_D0-
8	LVDS1_D0-
9	LVDS0_D0+
10	LVDS1_D0+
11	GND
12	GND
13	LVDS0_D1-
14	LVDS1_D1-
15	LVDS0_D1+
16	LVDS1_D1+
17	GND
18	GND
19	LVDS0_D2-
20	LVDS1_D2-
21	LVDS0_D2+
22	LVDS1_D2+
23	GND
24	GND

25	LVDS0_CLK-
26	LVDS1_CLK-
27	LVDS0_CLK+
28	LVDS1_CLK+
29	GND
30	GND
31	NC
32	NC
33	GND
34	GND
35	LVDS0_D3-
36	LVDS1_D3-
37	LVDS0_D3+
38	LVDS1_D3+
39	NC
40	NC

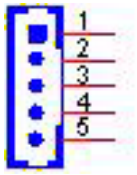
CN36	**HDMI**
Part Number	1654009225
Footprint	HDMI_19P_QJ51193-FFD4-7F
Description	HDMI Conn 19P 0.5mm 90D(M) SMD QJ51193-FFB4-7F
Pin	Pin Name
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2®C
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1®C
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0®C
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock®C
13	Reserved
14	Reserved
15	SCL
16	SDA
17	DDC Ground
18	+5V Power
19	Hot Plug Detect



CN37	**eDP**
Part Number	1653910261
Footprint	SPH10X2
Description	B/B Conn 10x2P 1.25mm 180D(M)SMD DF13-20DP-1.25V
Pin	Pin Name
1	GND
2	GND
3	D0-
4	D3-
5	D0+
6	D3+
7	GND
8	NC
9	D1-
10	GND
11	D1+
12	SDAT
13	GND
14	SCLK
15	D2-
16	GND
17	D2+
18	Hot Plug Detect
19	+5V or +3.3V
20	+5V or +3.3V



CN38	24 bits LVDS1 Inverter Power
Part Number	1655000453
Footprint	WHL5V-2M-24W1140
Description	WAFER BOX 2.0mm 5P 180D(M) DIP WO/Pb JIH VEI
Pin	Pin Name
1	+12V
2	GND
3	ENABKL
4	VBR
5	+5V



Appendix B

UTC-500 Peripherals Series Installation Guide

B.1 UTC-500 Peripherals Series Installation Guide

Model	Description
UTC-P01-A0E	2M Camera Module for UTC-500 Series
UTC-P02-A0E	Magnetic Stripe Card Reader for UTC-500 Series
UTC-P03-A0E	RFID Reader for UTC-500 Series
UTC-P06-A0E	Smart Card Reader for UTC-500 Series

Packing List

- UTC-PXX
- CD-Driver
- Cable Clamp x 2

Assemble the UTC-Peripherals

1. Attach the UTC-peripheral to the UTC 500 series side groove.
   (The UTC-500's uniquely designed side groove creates an attachment area that runs all around the frame; customer's can easily attach peripherals to it for their applications.)

2. Fasten the 2 screws to fix the peripheral in place.

3. Connect the cable to an I/O port (USB).

4. Choose a location to put the cable clamp and attach the cable to it.

Attaching a peripheral on the top of the unit

Attaching a peripheral on the bottom of the unit

An attachment to the left side

ADVANTECH

Enabling an Intelligent Planet

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

No part of this publication may be reproduced in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission of the publisher.

All brand and product names are trademarks or registered trademarks of their respective companies.

© Advantech Co., Ltd. 2012